CARLETON PLACE DISTRICT
FISHERIES MANAGEMENT PLAN

BACKGROUND INFORMATION AND
OPTIONAL MANAGEMENT STRATEGIES

1985-2000

A SUMMARY

Ontario

Ministry of
Natural
Resources

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Minister

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PUBLIC REVIEW

Please assist with the preparation of the Carleton Place District Fisheries Management Plan. You are encouraged to provide input by reviewing and commenting on this summary and by completing the attached questionnaire.

Please submit comments and the completed questionnaire by April 10, 1987 to:

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Additional copies of this Summary are available.

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SECTION 1.0 INTRODUCTION

Section 1.1 Purpose

The Ministry of Natural Resources has initiated a planning process to identify how the fisheries resource within the province should be managed. This background document presents a summary of fisheries resource information and options for management of the fishery within the Carleton Place Administrative District. Following public review a draft Fisheries Management Plan will be developed. The Fisheries Management Plan will identify both long term fisheries management direction (year 2000) and specific short term fisheries management programs to be carried out within the Carleton Place District, over the next five years.

This document encompasses the 5,891 square km of land and water under the jurisdiction of the Carleton Place District of the Ministry of Natural Resources, (Figure 1). All waters in the District have been considered in this plan, including White, Silver and Brooks Lakes in their entirety, but excluding Bobs Lake. Only the Lanark County and R.M.O.C. portions of the Ottawa River, the Rideau River, Big Rideau Lake and Lower Rideau Lake are included.

Section 1.2 Planning Process

This plan is being prepared within the framework of the Ministry's overall resource planning and management system. Important elements of this system include the Co-ordinated Program Strategy for Southern Ontario (C.P.S) which outlines the Ministry's intent to provide optimum use of the resources with a minimum conflict to achieve established objectives; the Strategic Planning for Ontario Fisheries (S.P.O.F.) which identifies overall fisheries management principles and technical direction; and finally the District Land Use Guidelines (D.L.U.G.) which provides targets and program direction for individual resource management such as fisheries plans at the District level.

In addition to a summary of background information, this document contains optional management strategies and tactics. Once the public has had the opportunity to review and comment on this document a number of strategies and tactics will be selected and a Draft Management plan will be prepared. The public will have the opportunity to review the draft plan and based on comments received a final management plan will be prepared. It is expected that the draft plan will be available for review in March, 1987.

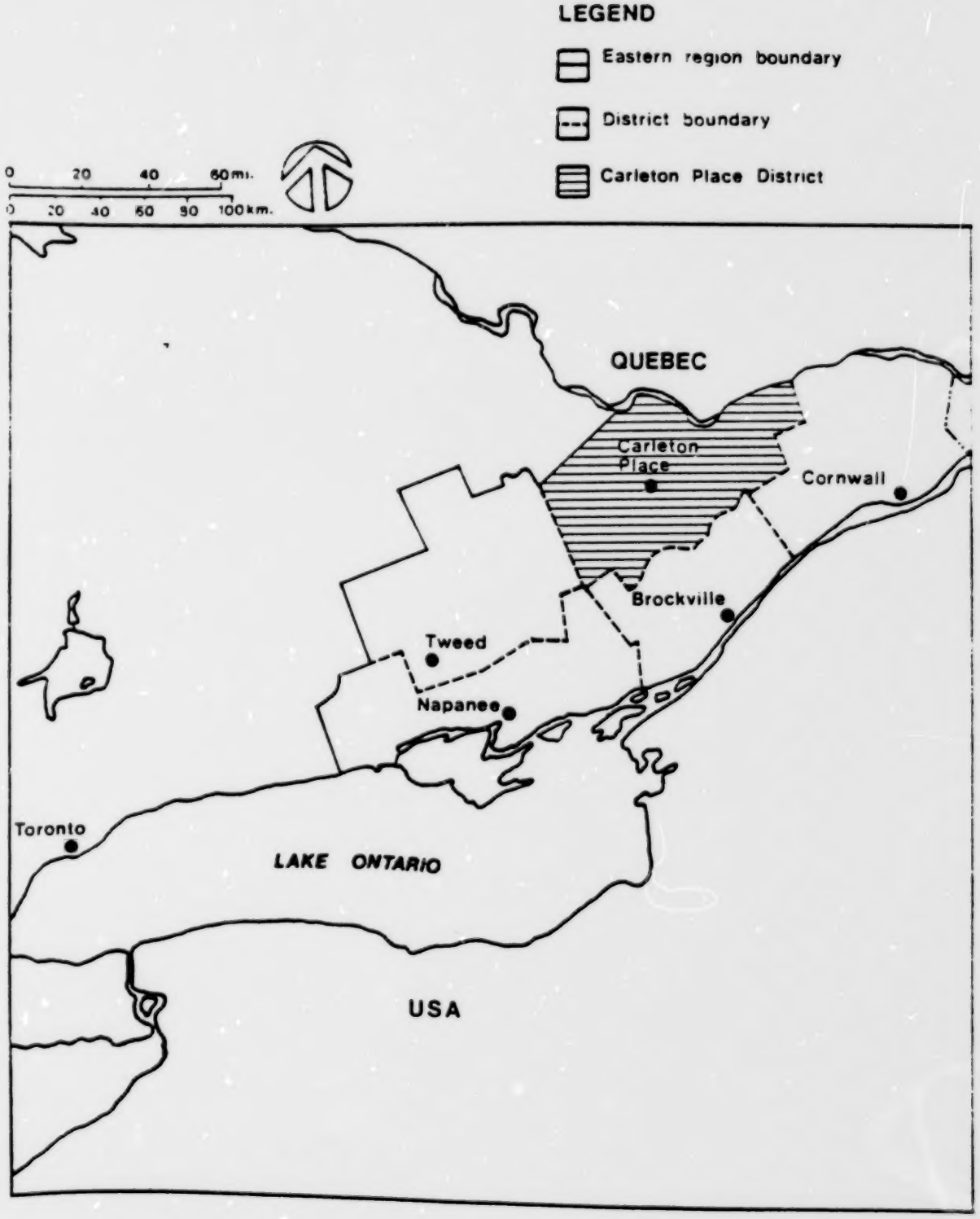
Section 1.3 Detailed Background Report

A detailed background report and analysis has been prepared and forms the basis for the management direction described in this plan. This supporting document is available for review at the Carleton Place District Office and includes information regarding:

The Resource
Resource Use and Projections
Target Testing
Problems and Issues
Present Management Practices
Target Refinement
Identification and Evaluation of Optional
Management Strategies and Tactics

This document is a summary of the above report.

REGIONAL SETTING



CARLETON PLACE DISTRICT

FISHERIES

LEGEND

Sport Fisheries

Coldwater species

- lake
- stream

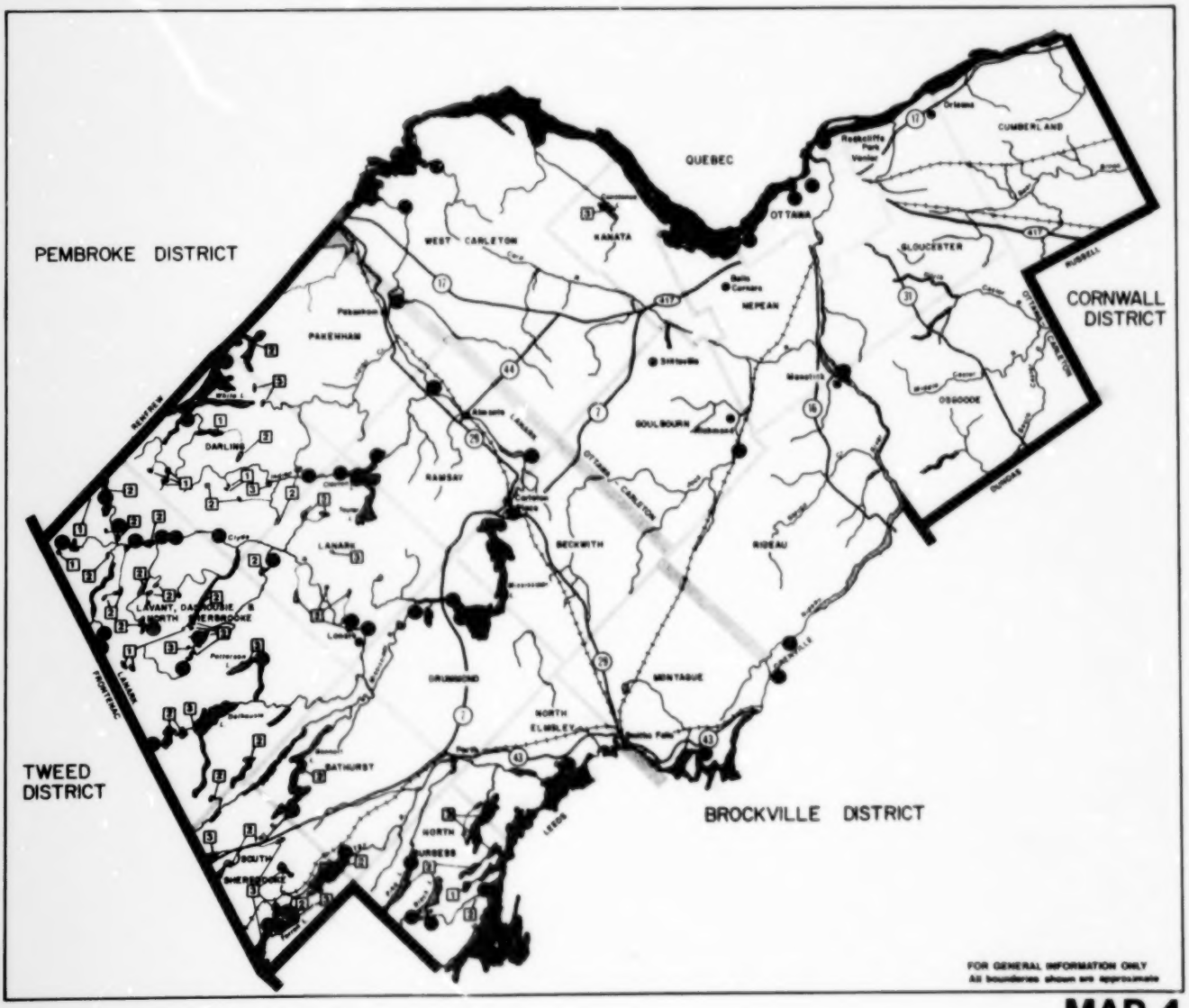
Cool and warmwater species

- lake

- 1 Class 1 waterbodies
- 2 Class 2 waterbodies
- 3 Class 3 waterbodies

Commercial Fisheries

Special area (pickerel spawning)



MAP 4

SECTION 2.0 BACKGROUND INFORMATION

Section 2.1 The Resource Base

Section 2.1.1 Perspective

The Carleton Place District consists of Lanark County and the Regional Municipality of Ottawa-Carleton.

The total area of land and water is 589,100 hectares and contains approx. 669,000 permanent residents (Background Information, Lanark and Ottawa District Land Use Strategy).

The District is located in the transition zone between the Precambrian Shield, which is relatively infertile, and the more productive South Eastern Lowlands.

There are 191 lakes and 105 rivers/streams/creeks in the District. They have a total estimated area of 23,000 ha. The four major water systems passing through the District flow east and north to the Ottawa River. They are: Mississippi River, Rideau River, Madawaska River and the South Nation River.

9% of the total water area is found in coldwater lakes, 54% in warmwater lakes, 36% in rivers and streams and the remainder in small ponds.

The Carleton Place District contains 50 managed private ponds. The average pond size was 0.09 ha.

These ponds provide considerable private recreational opportunities, but are not open to the general public.

Section 2.1.2 Lake Classification

Three classes are identified. Trophy Fisheries, (Class 1) are waters that are managed for high quality angling by virtue of a catch rate above two fish per day, or a specific trophy species and a wilderness type atmosphere.

Principal Fisheries, (Class 2) are waters that are managed primarily for a good angling experience with other recreational values secondary. A catch target of 1.5 fish per day for all sport fish combined would be desirable.

General Recreation, (Class 3) identifies waters that provide a broad range of water related recreational experiences including fishing opportunities. The angling quality is modest; harvest targets per day are about 0.1 for sport fish and 6.0 for yellow perch and panfish.

Section 2.1.3 Harvest

Many waters in the Carleton Place District are presently not capable of producing the theoretical potential yield because of historical

overfishing, and/or habitat degradation. (See Table 11.)

The allowable harvest for each lake was therefore calculated by species, based on the most recent actual species composition, as established by netting catches. It is recognized that this figure will change if fishing declines further, or recovers.

Section 2.1.3.1 Definition

Several terms regarding productivity are used:

"potential yield"	=	the potential annual production of fish in a water, where no extraordinary stresses prevail
"allowable harvest"	=	the annually allowable take in a water under present conditions
"present harvest"	=	the existing annual take
"partitioning"	=	the division of the potential yield, the allowable harvest, or the present harvest into individual species components.

Section 2.1.4 Significant Areas

There are a number of significant areas in the district that are essential to meeting the district's targets. These areas include spawning areas, nursery areas, adult habitat, which may take the form of a specific stream, set of rapids, a single bay or weed bed.

At the present time the Lake trout, Muskellunge and Yellow pickerel fisheries rely almost exclusively on natural reproduction. Reproduction sites are very location specific, and are vulnerable to (a) illegal harvest practices, and (b) to man made habitat deterioration.

Spawning habitat for other species may not be very localized. It is nevertheless essential for the maintenance of the fishery.

Northern pike spawn in grassy or weedy shallows along lakes and rivers. Important sites are characterized by sedge hummocks in 0.5 meters of water. Pike spawn requires stream flow or wave action for incubation. Spawning marshes should be protected from infilling, diking, dredging or advancing plant successions.

Largemouth bass prefer roots and stumps for shelter in their spawning areas. Dredging and shoreline cleaning and chemical control of aquatic vegetation should be prevented where largemouth bass occur. Shorelines with a southerly aspect are preferred.

Smallmouth bass frequent gravelly open shores with a southerly aspect.

They are subject to disturbance by boats, construction of artificial beaches, shoreline revetments and chemical plant control.

The majority of species in lakes and streams rely on the productivity of the littoral zone for the production of food and shelter. Alterations of the littoral area, alterations of the nearshore land areas and the channellization of streams should be strongly discouraged.

Section 2.1.5 Fisheries Trends

In the majority of the major lakes of the Carleton Place District game fish populations have declined to 50% or less of the density evident in 1959/61. A low point was reached in the mid 1970's. Since 1978 a moderate improvement of the sports fisheries is noticeable.

The decline of gamefish stocks was accompanied by a concurrent increase in the growth rate of the heavily harvested species, such as Yellow pickerel and Northern pike. Conversely, since 1980 a decline in the ame fish growth rate is discernible.

Concurrent with the gamefish density decline, an increase in the abundance of panfish was noted.

Angling pressure has increased consistently and gradually until the mid 1970's, when a 25% drop in angler interest was monitored. Since 1980 angling pressure has risen and has now surpassed the previous level.

Section 2.2 Resource Use

Section 2.2.1 Sport Fisheries

Angling fisheries are located in 296 waters, covering 23,045 hectares. The fishery should be capable of producing 227 tonnes of fish per year.

At present the district generates 200,000 recreational angling opportunities and has an angler population of 138,000 sportsmen using the resource.

Five percent of the angler effort is directed at coldwater fisheries. Thirty percent of the angling pressure is accommodated by warmwater rivers. Sixty five percent of all angling activity takes place on the warmwater lakes of the district (Table 20.1).

The principal species harvested by residents are: Yellow pickerel, Northern pike, Ling, Bullhead, Catfish, Bass and Trout. The principal species harvested by non-residents (in decending order) are: Perch, panfish, Northern pike, Smallmouth bass, Rock bass, Yellow pickerel and Bluegill. Actual angler catches do not necessarily reflect angler preferences.

It is estimated that legal spear fishing contributes less than 500 recreational opportunities in the District per year.

Dip netting is estimated to produce less than 400 recreational opportunities per year.

In view of the very restricted area where bow and arrow fishing is permitted it is estimated that archery produces less than 100 recreational opportunities per year, at this time. Carp archery may be expanded to an estimated 2,000 user opportunities/year, pending appropriate regulation changes.

Section 2.2.2 Baitfish

Baitfish not only serve as a source of income through sales but are an important food species of many of our sport species. They are also important in the control of aquatic insects (mosquitoes and blackflies).

The management goal is to maintain a balance in all these components for the benefit of the Districts fisheries resource.

Twenty two baitfish harvesters and 31 baitfish dealers were licenced in the Carleton Place District in 1985. The harvest from local waters was 35,000 dozen.

The Carleton Place District is presently divided into bait fish blocks. Some harvesters who hold relatively unproductive areas may be assigned to more than one block. Where traditional harvesting rights overlap, the single block per harvester system will gradually be implemented as attrition depletes the ranks of traditional licencees.

The existing bait fish industry in the district is inefficient, relying predominantly on field supply.

Baitfish fishermen should be encouraged to utilize holding and rearing ponds. Overlap licencing should be eliminated. (Table 20.)

Section 2.2.3 Commercial Food Fisheries

Only one commercial fishery exists in the district at present. This operation is located in the Ottawa River and harvests approximately 300kg of Sturgeon, 300kg of Carp, and 1,000kg of Bullheads and Channel catfish combined.

The Carleton Place District is divided into 4 Commercial Quota Fishing Zones, described as follows:

Zone CA-CF1 Ottawa River from the Chats Lake Dam, Fitzroy Township to the Chaudiere Bridge, City of Ottawa

Zone CA-CF2 Ottawa River from the Chaudiere Bridge, City of Ottawa to the Cumberland and Clarence Townships boundary

Zone CA-CF3 Rideau River from Poonamalie Locks, North Elmsley Township to Manotick, North Gower Ward, Rideau Township

Zone CA-CF4 All unspecified waters within the Administrative District of Carleton Place, in Lanark County and the Regional Municipality of Ottawa Carleton.

Until 1984 the fishery was managed by territorial limitations, seasons, size limits and gear restrictions only. Future management will also include control by quota.

The commercial food fish fishery is suffering from inefficiency, contamination, partial overharvest and habitat change. It is also subject to public misunderstanding, and frequent violent, unwarranted opposition.

Section 2.2.4 Tourist Operators

A large number of tourist outfitters operate within the District. Facilities range from simple cabins to full "American Plan" accommodations including boat rental and guides. Guests of tourist establishments are primarily attracted by the Yellow pickerel potential of District lakes, although the major catches are composed of panfish, Pike and Bass.

Tourist establishments have shifted their emphasis from being strictly fisheries oriented in the 1950's and 1960's to general recreation and cabin rental. The large rental fleets of small fishing boats have declined to less than half their former number. The decline of Pickerel angling success caused a noticeable drop in the May-June tourist business. A gradual shift from non-resident oriented tourism to non-local resident tourism has been noted.

Section 2.2.5 Other Uses of District Waters

Fishing accounts for 62% of the boating activity on key lakes in the District (Aerial Census 1981).

Other boating activities are sailing, cruising, waterskiing and canoeing.

Swimming and skidooing are additional active uses of District lakes.

Section 2.3 Demand Projections

Human Population Trends

The district population was 594,185 in 1980.

The projected District total is 668,490 in 2001, i.e. a 12.5% increase over 20 years.

Section 2.3.1 Angling Projected Use

There appears to be an extensive unsatisfied demand for angling recreation. This is demonstrated by a visible increase in angling pressure in any water where angling quality is being improved. Forecasts of projected use, which

are solely based on human population forecasts, must therefore be used with caution.

Based on the forecasted population increase of 12.5%, it can be predicted that angling pressure in the Carleton Place District will increase - from 138,000 anglers in 1980, fishing a total of 800,000 rod hours or 200,000 opportunities (i.e. angler days) to 155,000 anglers in 2001, fishing a total of 900,000 rod hours or 225,000 opportunities. (Table 20.1)

Section 2.3.2 Bait Fish Projected Use

Harvesters

The bait fish resource in the Carleton Place District is adequate to sustain 15 fully licenced bait fish harvesters, who are harvesting bait fish from the wild, in 15 individual bait fish blocks, 10 are inland areas and 5 are Ottawa and Rideau River areas (see Table 20).

Unless environmental degradation causes a serious drop in baitfish productivity a harvest of 50,000 dozen baitfish per year is projected for the year 2000.

Bait Fish Dealers

No ceiling is placed on the number of bait fish dealership licences without harvesting privileges, as long as the District operating standards are satisfied.

Section 2.3.3 Commercial (Food) Fish Projected Use

The commercial fish potential is considered to be that portion of the fishery, which is not required for the recreational fishery, the private use fishery and the bait fish fishery.

Considerable potential for intensification of the existing and licencing of additional commercial fisheries is present in the District, provided public acceptance of commercial fishing can be achieved (see Table 20).

The projected harvest for the year 2000 is 5.0 tonnes per year. This tonnage could be extended if greater public acceptance of commercial fishing as a management tool for sports fish production can be attained.

Section 2.4 Target Refinement

Targets for the sports fishery, the baitfish fishery and the commercial food fishery were originally stated in the Strategic Land Use Guidelines for the Carleton Place District. These targets have been analysed and amended, as further information has been compiled. Refined targets are shown in Tables 20.0 and 20.1 as well as 20.0 to 20.8 in the background package.

Section 2.4.1 Angling Supply Targets

The allowable angler harvest for the District is adequate to service 250,000 angling opportunities per year (Table 9). Since the projected demand for the year 2001 is 225,000 opportunities, it appears that there is reserve overall capability to accommodate this demand.

A detailed review of the reserve capability shows the following situations: (Tables 9.6 and 20.1).

Section 2.4.1.1 Coldwater Lake Fisheries

Present use is marginally lower than the allowable use and the potential use. The coldwater fisheries target is therefore 8,000kg or 10,700 angler days per year.

Section 2.4.1.2 Warmwater Lake Fisheries

Seriously overharvested, particularly in Yellow pickerel and Pike. The present use exceeds the allowable use by 39%. The immediate objective is therefore to reduce the current take. The long-term target is to increase the harvest as well as the recreational output to 101 tonnes and 192,000 angler days per year.

Section 2.4.1.3 Coldwater Stream Fisheries

Here the present use nearly equals the allowable use and the potential use. The target is therefore to maintain the coldwater stream fishery more or less at the status quo.

Section 2.4.1.4 Warmwater Stream Fisheries

Underharvested. No figures are available for the allowable use, present use is 38% of the calculated potential use. Targets for the warmwater stream fishery call for an intensification of use of the rivers and streams of the district.

Section 2.4.1.5 General Angling

A detailed review shows that most of the unutilized reserve capacity is located in unwanted species, such as coarse fish or panfish.

Section 2.4.2 Commercial Fishery Target

The long range target for the commercial fishery is 10,000kg of coarse fish and panfish per year. This can only be realized if angler acceptance of commercial fishing as a management tool can be achieved (Table 20.0).

Section 2.4.3 Baitfish Target

The baitfish target for the district is 60,000 doz/year. This can only be realized if new harvesting techniques, and holding facilities are developed (Table 20.0).

Section 2.5 Problems and Issues

There are a number of problems and issues that prevent the District from realizing the total potential yield from fishery resource (see Table 11).

Nine groupings are needed to deal with the problems and issues in the District.

Section 2.5.1 Over-Harvest of Game Fish

Overharvest of Yellow pickerel and Northern pike is a serious problem in the warmwater lakes of Carleton Place District. (See Tables B 1.1 through B 2.3 of the Background Package.)

Section 2.5.2 Under-Harvest of Game Fish

This situation exists in some small lakes on Crown Land where public access is difficult, as well as in some lakes surrounded by private lands where access is prohibited.

The Ottawa River is also under-harvested, largely due to some reticence for fishing in large bodies of water.

Section 2.5.3 Water Quality Deterioration

Section 2.5.3.1 Nutrient Enrichment

Nutrient encirchment is a process describing increasing fertility of lakes. It may be a normal ageing process of any water, leading from a lake to a bog condition. The process can be rapidly accelerated by human activities such as extensive cottage development, shoreline clearing, road construction, municipal waste discharge, agricultural tile drainage, heavy fertilization of crops, erosion, award ditches and municipal drains.

During the process of nutrient enrichment water changes from a cold, clear, nutrient-poor environment of low productivity, to a highly enriched, warm, productive habitat. Nutrient enriched waters are subject to oxygen depletion, algal blooms, siltation and an increase in aquatic vegetation.

Indications of nutrient enrichment are found to a moderate exent on virtually all waters in the Carleton Place District. They are found to a significant extent in the Tay River below Perth, Lower Rideau Lake, the Rideau River, Mississippi Lake, the Mississippi River downstream from Bathurst Township, the Jock River, the South and North Castor Rivers, the Carp River, and other creeks in the urban or agricultural portions of the district.

Section 2.5.3.2 Pollution

Water pollution is the introduction of foreign substances into waters, directly or indirectly, which reduce the value of the water for man and/or

aquatic organisms. It includes chemical waste from industry or agriculture, salt erosion from roads, accidental spills of various materials and the leachate of human pathogens from sanitary sewers, storm sewers and overflows. It is found in the major rivers and streams of the Carleton Place District.

Polution also includes the precipitation of aerial pollutants into lakes and rivers, and the resultant contamination of fish flesh, or damage to fish reproduction.

Section 2.5.4 Water Levels

Water levels and water flows are extremely important to fisheries management. Freshwater fish in the temperate zone are genetically programmed to live in waters of seasonally changing temperature structures, seasonally changing light conditions, plant growth patterns, spring and fall flood conditions and water level stratification. Water level and flow manipulations which disrupt these natural patterns may have severe impacts upon fishes.

Existing or potential water level problems are located on Bobs, Pike, Bennett, Farren Widow, Kerr, Clayton, White, Rideau and Mississippi Lakes, as well as on the Rideau River. Water supply and flow problems exist on Joe Lake, Christie Lake and at Burritts Rapids on the Rideau River.

Section 2.5.4.1 Drawdowns and Drainage

A. - Spring drawdowns implemented by varicus agencies, such as Ontario Hydro, Conservation Authorities, Canal Authorities. The purpose for these drawdowns is largely flood control.

Results:
Drying up of pike and pickerel spawn, loss of year classes, reduction of top predators, increase of panfish populations.

B. - Agricultural Tile Drainage
Tile drainage results in early discharge of meltwaters into rivers thereby increasing spring floods. Drainage also causes early dry-outs of lowlands thereby decreasing the post flood water flow.

Result:
During the higher flood pike spawn on the floodplain. Immediately after the flood waters recede from pike spawning areas, drying up the eggs and fry results.

C. - Fall and winter drawdowns are implemented on the Rideau system for canal maintenance and flood retention purposes. Drawdowns after September 1st force spawning lake trout into low levels which were not subject to wave washing. Eggs deposited in silt subsequently smother. Drawdowns after November 1st expose larage percentages of lake trout, whitefish and ciscoe spawn to the air. They also cause severe winter mortality to

bullfrog and muskrat populations.

Section 2.5.4.2 Spring Backflooding

Spring backflooding of pike or pickerel spawning sites during the incubation period in April and May interferes with streamflow, with water warm-up. This in turn causes partial egg mortality. Effect: weakened year classes. Spring backflooding can occur on any warmwater fishery where water levels are controlled by a dam.

Section 2.5.4.3 Summer Stabilization

High summer levels are usually demanded by boaters and cottagers for navigation convenience. Results are detrimental for fish. Problem waters are White, Bennett, Clayton, Mississippi, Patterson and Robertson Lakes.

Section 2.5.4.4 Natural Stream Degradation

Coldwater streams in the district are subject to significant damage by beaver, who's dams result in warming up the waters, reducing flow rates, siltation of the stream bottom, and the elimination of spawning substrate.

Section 2.5.5 Shoreline Development

The increasing development of lakeshore cottages, tourist establishments, trailer parks and permanent homes has had the following impacts on lakes within the past twenty five years:
- shoreline alterations
- damage to the littoral zone
- nutrient enrichment of the lake system
- increased harvest pressure.

The issue is compounded by the fact that most lakeshores in the Carleton Place District are in private ownership.

Section 2.5.6 Acidification

All major waters in the Carleton Place District were assessed for sensitivity to acidic precipitation in 1978. At that time no serious sensitivity was documented with the exception of Bennett Lake, whre a reduction in p.H. was shown from 1970 to 1978.

Between 1978 and 1986 p.H. reductions have been docmented in 9 out of 10 marsh areas.

Although no impact upon fish production is as yet apparent, it is anticipated that acidification may affect the natural reproduction of marsh spawning species such as Pike and Muskellunge in the foreseeable future.

Section 2.5.7 Resource Management Expertise

Fisheries management is a young discipline and may often be more of an art than a science. Managers are occasionally required to resort to experimental management, in the absence of proven procedures and directives.

Section 2.5.8 Conflicts

In this section conflicts are understood to be diametrically opposed interests of:
- resource components
- resource user groups
- private and public agencies.

The many types of conflicts are explained in the District Background Document.

Section 2.5.9 Information and Data Gaps

Lack of consistent, standardized assessment procedures and absence of consistency in long term assessment planning can resultin serious data gaps, which are detrimental to long range resource planning.

SECTION 3. PRESENT FISHERIES MANAGEMENT PRACTICES

Section 3.1 Fisheries Enforcement, Code 3241

Regulatory management is the oldest and still most effective technique of fisheries management. Activities include control of legal sport fishing; control of illegal fishing activities, and habitat protection. It also includes control of commercial food fisheries and bait fish operations.

Section 3.2 Habitat Management

Habitat assessment includes lake and stream inventories. All lakes and some streams considered significant to the public fishery were inventoried within the past 15 years.

Habitat improvement is a physical alteration of a lake or stream, for the purpose of fish production. This can be achieved in many ways such as: the building of structures which directly benefit the fish, by the placing of structures which influence stream flow and wave action, by the manipulation of water levels, by channelling, dredging, bank stabilization and backshore fencing, by stream bank forestation, nutrient retention, erosion control, adding chemicals to water.

Numerous habitat improvement projects have been carried out by District staff and volunteer groups over the years.

Habitat protection is carried out through law enforcement under power of the Fisheries Act (Canada), the Navigable Waters Protection Act (Canada), the Lakes and Rivers Improvement Act (Ontario), the Beach Protection Act (Ontario) and the Conservation Authorities Act. Permits are required for a wide spectrum of activities such as dredging, filling, shoreline alterations, damming, draining, diversions, bridging, chemical controls. Major projects are subject to pre-assessment under the Environmental Impact Assessment Act.

Habitat protection is also a key rationale for lake shore development controls. It is implemented through the formulation of Land Use Plans, Township By-Laws, subdivision controls and through severance controls.

Implementing agencies are Municipal Planning Boards, County Severance Committees, Municipal Councils and the Ministry of Housing, with the Ministry of Natural Resources playing an advisory role. Habitat protection through the control of lakeshore development has been spectacularly unsuccessful within the past 15 years.

Section 3.3 Population Management

Intensive population assessment is carried out on key waters by means of index fishing operations. Catches per unit of effort, age/size correlations, species composition, and total population calculations are

established.

Three lakes are assessed annually allowing a 5 year return cycle with fifteen key waters. Assessment data are considered typical for all similar waters within the district. Less intensive population assessments are accomplished through lake reinventories and stream inventories.

Sport fishing pressures are monitored periodically through aerial boat counts on thirty key lakes. This is coupled with an annual surface creel program, which covers six lakes per year on a 3 year rotation. A combination of both programs facilitates a realiable, periodic harvest assessment at relatively low costs. Commercial fish harvest levels are based on the fisherman's annual report.

Population protection is implemented through the fisheries enforcement program and includes proposals for regulation changes where required.

Fish populations are manipulated by:
- habitat enhancement (See above)
- legislation changes such as: season changes; sanctuaries; catch limits, creel and quotas; size limits; gear control (See above)
- coarse fish harvesting
- lake reclamations
- stocking of hatchery fish
- introductions.

Coarse fish harvesting is carried out under commercial fishing licences. In the Ottawa River sturgeon, bullheads, channel catfish and carp are harvested. In Lower Rideau Lake bullheads, catfish, carp, as well as panfish and sucker are harvested. Although a remnant eel population exists in most district waters the species is not utilized.

Controlled harvest of ling has been attempted in Christie Lake in January, 1984 and 1985 under a Community Fisheries Involvement Project. The impact of this operation upon the sports fish populations will be measured in the periodic population assessments.

Four lakes have been reclaimed in the interest of trout management during the 20 year period 1964 - 1983. All of these have experienced re-invasions of undesirable species. Return reclamations of these waters, plus further reclamations of three additional lakes should be planned if funds become available.

Section 3.3.1 Fish Stocking

Only one lake trout lake exists within the District. The lake is heavily overdeveloped by cottages, a provincial park and a municipal parkette. Nutrient enrichment and shoreline alterations have resulted in spawning bed siltation. Natural reproduction has ceased. This fishery is totally reliant on hatchery support. Three other marginal lake trout lakes are considered as candidate waters for splake or brook trout introductions.

No naturally reproducing brook trout populations are found in District lakes. The fishery is totally reliant on hatchery stock.

Six brook trout streams are so poor that total hatchery support is essential. Eight streams have natural reproduction potential. However, angling pressures on these waters is so intense that heavy and consistent hatchery support is needed.

The two existing and one potential rainbow trout lakes require total hatchery support. Conversion of some rainbow trout waters to splake management is considered.

Two established, and two potential splake lakes exist in the District. All four are deemed best suited for "F one" fish. Since "F one" fish are not expected to reproduce, hatchery stock support is essential.

Between 1960 and 1977 small numbers of bass fingerlings were stocked on an alternate year cycle into several of the major bass lakes. No bass stocking success was ever established. By 1978 the stocking of bass for fisheries maintenance purposes was discontinued. To date (1986) no detrimental effect of the cessation of stocking has been documented.

Yellow pickerel EE were stocked widely in many waters between 1925 and 1935 and again between 1945 and 1955. The general stocking of pickerel was discontinued Province wide in 1956.

The Carleton Place District also manages 4 small lakes within the Eastern Region's experimental pickerel stocking assessment programme. Two of these waters are stocked annually with summer fingerlings at the rate of 100/ha. A third lake is stocked with advanced fall fingerlings at 30/ha. The fourth lake is not stocked, and assessed as control.

Assessment is by means of creel census, trapnetting and electrofishing in alternate years.

Although low levels of maskinonge fry have been stocked into the Rideau River in the late 1960's no impact of this program was ever demonstrated. The stocking of muskie fry has been discontinued.

Section 3.4 Fisheries Extension

The Carleton Place District services approximately 20 fisheries extension calls per year. These consist of taking winter and summer and limnological chemical profiles of ponds, advising property owners on stream bank management, stocking rates, species selection, instructing bait fish operators in bait fish procedures, giving advice re dams, pond rehabilitation, and includes occasional test netting.

Fisheries staff routinely communicate with other organizations and agencies by attending meetings, forwarding information, requesting investigations, presenting lake survey information.

Organizations involved include M.O.E., M.O.H., Conservation Authorities, Fish and Game Clubs, Cottage Associations, Municipal Councils.

SECTION 4. IDENTIFICATION OF MANAGEMENT OPTIONS

Perhaps the most crucial component of the fisheries management planning process is the identification, evaluation, and selection of management options to satisfy a stated program target. This is a problem of choice among various strategies and tactics which must be practical, technically feasible, contribute toward the target, be socially acceptable and be within the Ministry's mandate.

Nineteen major issues were identified. Remedial approaches were outlined for evaluation in Tables 21.1 through 21.9. Positive as well as negative particulars were recorded. Following the public review those strategies and tactics suitable for future resource management purposes, and acceptable to the various interest groups, will be compiled in the Fisheries Management Plan.

Table 9.6 GRAND SUMMARY - POTENTIAL YIELD

A Estimated

Class	Status & Type	# Water-Bodies	Area (ha)	POTENTIAL Poten. Yield Tons	POTENTIAL Total Poten. Angling Opportunities	POTENTIAL %	ALLOWABLE Potential Fishery Value $	ALLOWABLE Allow. Yield Tons	ALLOWABLE Allow. Angling Opportunities	ALLOWABLE %	PRESENT Allow. Fishery Value $	PRESENT Present Yield Tons	PRESENT Present Angling Opportunities	PRESENT %	PRESENT Present Fishery Value
I, II, III	Surveyed Coldwater Lakes	21	1,938	7.965	10,627	3%	317,301	7750	12,215	5%	303,750	7.539	10,754	5%	341,297
I, II, III	Surveyed Warmwater Lakes	80	11,753	101.131	192,449	57%	5,199,970	91366	107,311	41%	3,014,814	89.515	135,364	65%	3,420,476
III	Unsurveyed Lakes	75	420	-	-		-	-	-		-	-	-		-
II	Private Ponds	50	5	0.050	69		2,100	0.0500	69		2,196	0.0500	69		2,196
II	Coldwater Rivers & Streams	14	26(c)	0.048	66		65,326	0.048	66		2,100	0.048	200	1%	63,640
			62(w)	2.053	2,053	1%		2.053	2,053	1%	65,326	1.900	1,800		
II	Warmwater Rivers & Streams	91	1(c)	0.000	-	40%	-	-	-	53%	-	-	60,000	29%	1,909,200
			8,409(w)	113.101	136,509		4,343,716	113.101	136,509		4,343,716	100.000			
II	* Coldwater Sections of Rivers & Streams	14	20	0.1590	226		7,191	0.159	226		7,191	0.159	-		-
II	** Warmwater Sections of Rivers & Streams	91	8,471	116.76	162,512		5,171,131	116.760	162,512		5,171,131	116.760	-		-
		331	22,614	224,000	340,000	100%	9,930,609	215.000	250,0000	100%	7,791,885	200,000	210,000	100%	5,736,609

* These values represent the coldwater sections of the Coldwater Rivers and Streams and the Warmwater Rivers and Streams
** These values represent the warmwater sections of the Coldwater Rivers and Streams and the Warmwater Rivers and Streams

Table 10.0 TOTAL ALLOWABLE & POTENTIAL YIELD BY SPECIES

Sport Fish Species	# of Waters	Total Known Water Area Available to Species	Total Potential kg/yr	% of Total	Total Allowable kg/yr.	% of Total
Brook Trout	26	103	360.0	0.17	331.0	0.15
Rainbow Trout	57	287	225.0	0.22	225.0	0.13
Brown Trout	2	21	20.0	0.009	nil	-
Splake	5	170	174.0	0.08	174.0	0.08
Lake Trout	2**	1,339	1,235.0	1.78	1,235.0	0.55
Whitefish	2	1,503	867.0	0.40	867.0	0.40
Pickerel	53	19,369	55,868.0	25.90	30,139.0	13.97
N. Pike	119	21,724	50,390.0	23.35	30,165.0	13.98
S.M. Bass	66	21,263	50.984.0	23.63	37,452.0	17.36
L.M. Bass	35	11,153	11,503.0	5.33	10,542.0	4.89
Maskinonge	1	390	450.0	0.21	250.0	0.12
Y. Perch	74	20,447	13,759.0	6.34	19,663.0	9.10
Panfish	207	20,909	3,142.0	1.46	27,624.0	12.80
Other	208	20,977	14,738.0	6.83	31,819.0	14.75

** Includes Carleton Place District's portion of Big Rideau Lake.

NOTE: The allowable yield for panfish or coarse fish may exceed the potential yield as calculated per SPOF 12 on these waters a serious species imbalance exists.

Table 11.0 SUMMARY OF WATERS WHERE FISH PRODUCTION IS IMPAIRED

See: 8.1, 8.2, & 8.3

Cause	No. of Waters	Total Area	Name of Water	
Legal Overharvest	12	7,771	Bennett, Black, Clayton, Horne, Joe, Mississippi, Park, Patterson, White, Christie, Dalhousie, & Pike.	
Entrophication	11	7,345	Bennett, Black, Flower, Long, Mississippi, Park, Patterson, Silver, White, Christie, & Otty.	
Water Level Manipulation	15	7,797	Bennett, Clayton, Horne, Joe, Mississippi, Park, Patterson, White, Christie, Dalhousie, Pike, Widow, Ottawa River, Rideau River, & Rideau Lake.	
Spawning Bed Inadequate or Obstructed	5	3,198	Black, Flower, Robertson, Silver, White, & Barren.	
Illegal Harvest	9	2,549	Bennett, Black, Horne, Joe, Christie, Dalhousie, Kerr, Clyde River, & Rideau River.	
Narrow Littoral Zone	1	626	Otty.	
Pollution	2	7,662	Ottawa River, Jock River.	
Cultural Lake Shore Alteration	16	19,865	Bennett, Black, Mississippi, Patterson, Robertson, Silver, White, Christie, Dalhousie, Pike, Barren, Otty, Ottawa River, Rideau River, Lower Rideau Lake, & Big Rideau Lake.	Should also be in Tables 8.2 & 8.3.
Cultural Stream Degradation	13	272 km	Lower Mississippi, Jock, Rideau, Ottawa River, Lower Indian River, Indian, Steven's Creek, Middle Castor, South Castor River, Bear Brook, Kelly's & Pools Creek.	Should also be in Tables 8.2 & 8.3.
Natural Stream Degradation (Beaver Dams)	10	105 km	Broadbrook, Fairs, Craigs, Indian, Eastons, Paul's, Long Sault, Antoine, Mosquito, & Bolton Creeks.	Should also be in Tables 8.2 & 8.3.

Table 20.0 TARGET REFINEMENT, GENERAL

Fishery	CURRENT USE Kg.	CURRENT USE Angler Days	PROJECTED USE Kg.	PROJECTED USE Angler Days	AMENDED PLUG TARGET Kg.	AMENDED PLUG TARGET Angler Days	ALLOWABLE YIELD Kg.	ALLOWABLE YIELD Angler Days	TARGET Kg.	TARGET Angler Days
Sport Fishery	199,213	208,369	224,310	235,118	215,000	300,000	214,254	228,421	224,236	342,037
Commercial Food Fishery	3,500	-	5,000	-	3,500	-	10,000	-	10,000	-
Commercial Bait Fishery	40,000 doz.	-	50,000 doz.	-	40,000 doz.	-	60,000 doz.	-	60,000 doz.	-

Table 20.1 ANGLING FISHERY TARGET REFINEMENT

Fishery	CURRENT USE Kg.	CURRENT USE Angler Days	PROJECTED USE Kg.	PROJECTED USE Angler Days	DLUG TARGET Kg.	DLUG TARGET Angler Days	ALLOWABLE YIELD Kg.	ALLOWABLE YIELD Angler Days	TARGET Kg.	TARGET Angler Days
Coldwater Lakes	7,600	10,700	8,500	12,500	not specified		7,750	12,200	8,000	10,627
Warmwater Lakes	89,515	135,400	100,700	152,300	not specified		91,400	107,311	101,132	192,500
Private Ponds	50	69	56	78	not specified		50	70	50	70
Coldwater Rivers & Streams	48	200	54	240	not specified		54	240	54	240
Warmwater Rivers & Streams	102,000	62,000	115,000	70,000	not specified		115,000	108,600	115,000	138,600
TOTALS	199,213	208,369	224,310	235,118	215,000	300,000	214,254	228,421	224,236	342,037

A Denotes Estimates

Table 21.1
1 of 5
A

EVALUATION OF MANAGEMENT OPTIONS

SPORT FISH

Coldwater Lake Fisheries:

Projected Use	8,500 kg	23,000 Angling Days
Potential Use	8,000 kg	12,850 Angling Days
Allowable Yield	7,600 kg	12,500 Angling Days
Present Use	7,600 kg	20,000 Angling Days

1) Issue: Over-Utilization of Waters

The present coldwater lake fishery, which is totally dependent upon hatchery support, is over-utilized by 26%. This is reflected in a catch rate of trout which is noticeably below the angling quality standards. The underlying reasons for the problem are the scarcity of suitable coldwater lake fisheries and insufficient natural reproduction.

	IDENTIFICATION			EVALUATION	
	Optional Strategies	Problems	Optional Tactics @	Strategies	Tactics
I	Access. Maintain public access to Bottle, Dunks, Little Green, Green and Peterwhite Lakes on Crown Land.		Occasional road maintenance and garbage removal.	Continue present activity. Present access satisfactory. No camping allowed.	Continue present activity. Maintain M.N.R. forest access road.
II	Maintain primitive access to Perch Lake.	A.T.V. Required.	Maintain present status of wilderness fishing.	As above. Only approach feasible if wilderness aspect is to be maintained.	No access road required. Wilderness lake. Provides desireable cross section of recreational opportunities.
III	Obtain access to lakes surrounded by private lands. Crains, Hollinger, Tower, Minnow, Nichols, Taylor, Geordies, Tate, Troubleys, Lake of the Hills, Napier, Murray, Long.	Access presently not permitted by land owner.	Free access agreement (13).	Creating new trout lakes will diffuse pressure on existing fisheries and create more opportunities.	Not attractive to land owner.
			Access rental by M.N.R. (13).	As above.	Possible but expensive, may entail maintenance activities.
IV	Establish Public Fishing Areas	Shortage of suitable waters.	Purchase or rental by M.N.R. of 2 abandoned quarries near Ottawa, and stocking them 4 times annually with catchables (19c).	Will create a high profile fishery near urban centres.	Popular, $20,000, very expensive. May include grounds maintenance.
V	Stocking of Brook Trout Lakes, ie: Bottle, Dunks, Little Green, Green, Peterwhite.	Heavy pressure low catch success.	Maintain present stocking rate, stocking frequency and fish size (19a).	Only strategy for artificial fisheries.	Poor returns, fish too small for first year returns. Heavy winter mortality and possibly cannibalism. Low catches second year.
			Increase the once a year stocking rate (19).	As above.	May cause stocking mortality.
		Little usage in summer and fall.	Stock twice a year at lower rates (19).	As above.	May create trout rearing problems without significantly improving the fishery.
		Fish very small.	Procure larger stock from Provincial Hatcheries (19).	As above.	Requires choice of different gene-pool.
		As above.	Purchase larger stock from private suppliers (19).	As above.	Very expensive.

Table 21.1 EVALUATION OF MANAGEMENT OPTIONS
2 of 5
A SPORT FISH

	IDENTIFICATION			EVALUATION	
	Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
VI	Stocking of Splake into the following lakes: Brooke, Perch, Farren, Round.	Do not reproduce naturally.	Continue present practice of spring stocking of yearlings F-1 stock (19).	Only strategy for non-reproducing species.	Produces satisfactory returns. Popular, moderately expensive.
VII	Introduction of Splake into Davern , Napier, Murry Lakes.	Private land access not permitted.	Obtain access rights, and complete E.A. (13).	Presupposes access has been obtained.	Would produce greater salmonid fishing opportunities. Popular, moderatey expensive. May entail access point maintenance.
VIII	Maintenace stocking of Lake Trout into Silver Lake.	Low, if any natural reproduction.	Heavy level stocking of hatchery lake trout, 3,000 per year (19).	Water quality adequate to function as a holding basin.	Acceptable, popular and effective method.

3) Coldwater Lake Fishery
Issue: Over-Exploitation

Fisheries totally reliant on hatchery support are more subject to over-utilization (see above) than over exploitation. Fisheries which depend on natural reproduction may be seriously impaired by over-harvest, if natural brood stock are in short supply or harvested prior to age of maturity.

	IDENTIFICATION			EVALUATION	
	Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I	Reduce Angling Pressure on Lake Trout Lakes.	Heavy angling pressure resulting in harvest exceeding the allowable yield.	Shorten season (4).	Reduces recreation opportunities, but would achieve harvest cut-back.	May achieve adequate harvest cut-back. Some public opposition.
			Quotas, see below.		

Table 21.1 EVALUATION OF MANAGEMENT OPTIONS
3 of 5
A SPORT FISH

	Optional Strategies	IDENTIFICATION: Problems	IDENTIFICATION: Optional Tactics #	EVALUATION: Strategies	EVALUATION: Tactics
II	Reduce Harvest Without Reducing Opportunities	Harvest exceeds the allowable yield.	Creel limits ie: reduce limit from 3 to 2 or 1 (6).	Desirable option, if adequate reductions can be achieved. Will require greater enforcement emphasis.	Reduction to 2 would not be adequate to achieve objective by itself. Reduction to 1 would not be acceptable to the public, but may meet biological objective.
		Annual harvest exceeds allowable yield.	Personal harvest quota coupled with fish tags for Lake Trout (11).	As above.	Acceptable to some user groups. Could be split into winter-tags and summer-tags; could be very effective.
		Angling efficiency.	Gear restrictions: ie: prohibit herring (9).		May reduce some harvest of large spawners. Not effective if used alone.
		Angling efficiency.	Prohibit second line for ice fishing (9).		Would reduce winter harvest by 60%. Not adequate if used alone.
		Technology problem.	Prohibit down-riggers in summer fishing.		No data to support effectiveness.
		Technology problem.	Prohibit fish finders.		Legally not feasible to ban a navigational safety device.
		Angling efficiency.	Prohibit live bait.		Would reduce harvest significantly. Opposition from anglers and bait fish businesses.
III	Assure Adequate Number of Parent Fish Present, on Big Rideau Lake	Inadequate number of spawners.	Minimum size limit 40 cm (5), on experimental management basis.	Maintains fishing opportunity but reduces harvest.	Results in considerable release mortality.
			Slot size limit 40 - 55 cm (5), on experimental management basis.	Maintains opportunities. Significantly reduces harvests.	Release mortality and angler opposition.

Table 21.1 EVALUATION OF MANAGEMENT OPTIONS
4 of 5
A SPORT FISH

1) Coldwater Lake Fishery
Issue: Habitat Protection and Re-Habilitation

Nutrient leaching and surface erosion resulting from lakeshore development, road construction, etc. has resulted in loss of essential deep water trout habitat.

Shoreline alterations along trout lakes have damaged spawning substrate. Algae growth caused by lake enrichment has caused spawning bed deterioration and loss of recruitment.

Shoreline clearing and near shore development is thought to have a negative impact upon the littoral zone, and therefore upon the food chain for trout.

	IDENTIFICATION			EVALUATION	
	Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I	Control nutrient loading through Official Plan Review, and Municipal Zoning.	Increasing loss of oxygenated coldwater strata-septic tanks not totally effective during non-growing season.	Shoreline development ceilings (22).	Not effective. Municipalities reluctant to implement ceilings and set-backs greater than 30 metres.	formulae not accepted for use in Southern Ontario. Expect serious opposition from developers.
			30 metre set-backs (20, 27).		
			Initiate shoreline timber reserves on Crown Lands.		Will have some positive impact, where applicable.
II	Control shoreline alteration to protect spawning areas.	Near-shore dredging construction of beaches, docks.	Inspections and enforcement of Fisheries Act and other relevant statutes (24).	Absolutely essential on key areas.	Re-active approach resulting often in condoning alterations. Negative approach. Requires considerable staff time and funds, pro-active, possitive approach.
			Intensive public relations campaign (25).		
III	Control of shoreline alterations to protect littorel zone.	Clearing of shrubs, construction of beaches, concrete and steel bank retention.	As above.	Highly desirable in order to retain lake productivity for target species and forage species.	As above.
		Aquatic weed removal.	Delay applications to July 1st.	Presently being done in order to preserve swim-up fry of forage species.	
			Encourage applicants to use mechanical control.		
IV	Habitat Re-habilitation.	Inadequate spawning beds Silver Lake.	Re-build spawning beds. Placement of rock rubble on suitable shore at Silver Lake Park (15).	Essential to improve productivity to the potential yield level.	May be subject to siltation and algae growth in Silver Lake.
		As above.	Scouring of spawning bed with high pressure fire pumps (15).		Ineffective in Silver Lake. Re-silts before the lake trout hatch. Not required in Big Rideau Lake.
			Encourage shoreline owners to commence voluntary shoreline re-habilitation projects (26).		Applicable in Silver Lake as well as Big Rideau Lake.

Table 21.1 EVALUATION OF MANAGEMENT OPTIONS
5 of 5
A SPORT FISH

4) Coldwater Lake Fishery
Issue: Water Level Management

Water level manipulation has a pronounced impact on natural reproduction of trout, whitefish, and herring.

	IDENTIFICATION			EVALUATION	
	Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
1	Implement water level rule curve favourable to coldwater fish.	Winter drawdowns resulting in egg mortality prior to hatching.	Request water control agencies, such as Rideau Canal Office, to attain winter levels prior to October 10 (18).	Essential for lakes managed on natural reproduction.	Have permanent M.N.R. representative on Rideau Water Management Committee. Multiple and conflicting demands re: water levels such as cutting keys, flood prevention, canal repairs, navigational needs, canning requirements, buoyage, etc.
			Maintain high water levels throughout the winter.		
		City of Ottawa, short term water demand in February to 'cut the keys'.	Encourage the city to utilize some other method, which does not cause damage to fish.		

Table 21.2 **EVALUATIONS OF MANAGEMENT OPTIONS**

A SPORT FISH

Coldwater Stream Fisheries

Projected Use	- 190 kg	241 Angling Days
Potential Use	- 220 kg	270 Angling Days
Allowable Yield	- 160 kg	200 Angling Days
Present Use	- 159 kg	200 Angling Days

1) Issue: Over-Utilization & Habitat

The projected stream fishing requirements exceed the allowable use on those waters which are presently open to the public. Several marginal coldwater stream fisheries are seriously degraded by beaver activity. Other coldwater streams are closed to the public by private land owners.

The following waters are involved:
Broadbrook, Craigs, Eastons, Fairs, Indian, Kelly, Long Sault, Mosquito, Mud, Pauls, Pooles, Shields, Dalmeny, Antoine, South Clyde, Bolton Creeks, and Clyde River.

	Optimal Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
I	Provide and Maintain Access.	Access prohibited by land owner on all or portions of all streams.	Obtain general access agreements (13a) or Private access agreements by F & G Clubs (13b).	Only possible strategy, except the 'do nothing' approach. This is not acceptable.	Moderately high administrative cost. High stocking cost. May entail annual maintenance obligations, may cause trespass problems. No cost to Government. Only limited access for users. May require review of stocking policy.
II	Stocking.	Overfishing of accessible waters.	Increase stocking rate from 100 yg. per mile to 200 yg. per mile (19).	Traditional. Only strategy capable to cope with the heavy angling pressure exerted on the small streams in the district.	Very high cost. May exceed stream carrying capability. Very popular. Will increase catch success, may cause trout mortality.
III	Introductions.	No trout present.	Introduce brown trout into Bolton Creek and the Clyde River (19).	May establish self-sustaining trophy fisheries.	E.A. completed for Bolton Creek. Require E.A. for Clayton River. Will receive considerable public support.
IV	Habitat Enhancement ie: beaver dam removal bank cleaning rock revetments deflectors half logs, etc.	Beaver damage, stream bank deterioration.	'Adopt A Stream' C.F.I.P. Private club undertakers to improve and maintain one trout stream annually ie: beaver dam removal, etc. (17).	Attempt to enhance natural production as well as aesthetic appeal. Usually not adequate to eliminate artificial hatchery support.	Requires annual F & W staff presence. Club interest rapidly fails. Low maintenance cost to M.N.R. if C.F.I.P. High cost to M.N.R. if carried out by seasonal staff.
		As above.	Utilize J.B. crew as project. Utilize Fire crew when available. Section 38 project (17).		Usually only limited time available. Very effective, expensive. Requires intensive advance planning. Timing difficult.

Table 21.3 EVALUATION OF MANAGEMENT OPTIONS
1 of 10
A SPORT FISH

Warmwater Lakes Fish Communities:

Projected Use	37,500 kg	77,500 Angling Days
Potential Yield	44,500 kg	100,800 Angling Days
Allowable Yield	21,000 kg	45,000 Angling Days
Present Use	33,300 kg	69,000 Angling Days

1) Issue: Over-Exploitation of Pickerel and Pike Communities

The pickerel and pike fishery constitutes 7%% of the total warmwater lake fishery in the District. The projected requirements for pickerel pike based recreation by the year 2001 exceeds the allowable yield by 75%. Pickerel-pike fisheries have been degraded by several factors, of which, most prominent is historical over exploitation.

	IDENTIFICATION		EVALUATION	
Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I Reduce Angling Pressure on Class II Pickerel-Pike Lakes Listed: Bennett, Black, Bow, Bower, Christie, Clayton, Dalhousie, Graham, Horne, Joe, Kerr, Lafrance, Park, Pike, Riven, Robertson, White, Widow, and Wood.	Historical harvests in excess of allowable yield have resulted in strong panfish overstories, which are depressing gamefish recruitment as well as baitfish levels.	Introduce a split season. January 1st - February 28th and May 20th - October 10th and reduce winter fishery to one line only (4 & 9).	Present harvests exceed the allowable yield by 50%. A significant reduction in angling pressure could result in a partial achievement of production/ harvest balance.	Would curtail recreational opportunities. A reduction of the open season from 294 days to 196 days would achieve a satisfactory harvest reduction, provided angler habits remain static. This cannot be expected. Could be combined with other tactics. Would create public opposition.
		Eliminate ice fishing.		Would curtail opportunities. Would curtail harvest by 40%, which is not adequate to achieve desired objective, unless combined with other tactics.
II Reduce harvest without reducing opportunities.	Present harvest exceeds allowable yield and prevents re-building of game fish stock.	Reduce creel limit from 6 pike plus 6 pickerel to 2 pike plus 2 pickerel.	Desirable option. Will require greater enforcement emphasis. Would not suffice to reduce harvest by 50%.	This reduction in creel limits may not suffice to meet Class II game fish angling quality targets.
	Separate sport angling ie: catch & release from harvesting.	Change creel limit to aggregate of 8 pickerel, pike, and bass, of which no more than 2 may be of any one species.	As above.	As above. May over-protect smallmouth and largemouth bass in some waters.
III Reduce harvest while increasing recreational attractiveness and increasing opportunities.	Sport quality of fishery presently low, due to low percentage of pickerel & pike in species composition.	Implement slot size limit for pickerel on 2 experimental lakes 40 cm - 50 cm, and maintain creel limit of 6 pickerel, 6 pike, 6 bass as well as maintaining present 300 day season.	Desirable experimental option. Will require public relations involvement plus intensive creel and enforcement. Increases natural reproduction. Could be implemented on a few selected lakes for 6 year trial period.	Documented (Cochran) to increase angling catch success significantly, increase recreational output, while decreasing pickerel harvest. Will not remedy over-harvest of pike (Brousseau). Expect some release mortality.

Table 21.3
2 of 10
A

EVALUATION OF MANAGEMENT OPTIONS

SPORT FISH

Optional Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
III	As above.	Implement minimum size limit for pickerel at 40 cm, and maintain creel limits of 6 pickerel, 6 pike, 6 bass and maintaining 300 day season.	Will receive public support. Should be extended District-wide to simplify regulations. Alternately could be used on 2 lakes as pilot project only.	Delaying age of entry of pickerel into the fishery from III to IV increases the overall number of pickerel caught by 14%. It reduces the harvested number of fish by 10% since more small fish have to be released. Since the retained fish will be larger the overall yield remains almost static (Schneider). The delay also increases pickerel egg production by 25%. This applies particularly to fast growing and high exploited stocks (such as in the Carleton Place District). Will not address over-harvest of pike.
	As above.	Implement a slot size limit for northern pike on 2 experimental lakes 56 cm (age IV) to 75 cm (age VII); maintain current creel limits and season.	Desirable experimental option. Will require public relations and enforcement. Could be tried on one or two experimental waters.	May or may not be coupled with pickerel slot limit waters. Experimental. No data available. Expected to produce a high-trophy and high catch & release fishery. Requires enforcement.
	As above.	Implement minimum size limit for pike of 46 cm (age IV) and maintain current creel limits of season.		Will cause decreased growth rate, and decreased yield. Would double angling success (Kempinger & Carline).
	Angling efficiency.	Eliminate second line in winter fishery but maintain present seasons & creel limits.		Would reduce annual harvest of pickerel by 12% and of pike by 8%. Not adequate to re-habilitate the fishery.
	Angling efficiency.	Prohibit live bait.		Very unpopular. Could reduce harvests.
IV Believe harvest pressure on adult pickerel.	Possibly scarcity of potential parent fish.	Eliminate present minimum size limit of 35 cm to shift harvest to stronger, younger age classes.	Attractive in theory only. Age distributions from lake surveys show that mature fish are rapidly harvested as soon as they grow beyond 35cm size class. May reduce adequate entry of immature fish into reproductive category.	In light of low overall daily catches at present time, no impact expected. This tactic would work where anglers frequently catch their daily limit of 6 fish. Where daily pickerel catches at present average only one pickerel, the removal of the size limit would only increase the overall harvest.

Table 21.3
4 of 10
A

EVALUATION OF MANAGEMENT OPTIONS

SPORT FISH

Warmwater Lakes Fish Communities:

Projected Use	14,238 kg	29,548 Angling Days
Potential Yield	30,973 kg	73,258 Angling Days
Allowable Yield	16,289 kg	35,928 Angling Days
Present Use	12,647 kg	26,265 Angling Days

2) Issue: Bass Communities, Under-Utilization

The smallmouth bass fishery and the largemouth bass fishery are an important component of the District's warmwater recreation programme. Both fisheries appear to have the ability to sustain higher harvests and angling pressures under current management practices. The fisheries are not producing at the potential yield level.

	IDENTIFICATION		EVALUATION	
Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I Maintain present management approach.	Fishery slightly under-utilized.	Maintain present seasons, creel limits and size limits.	Would fail to maximize total potential production and use from the bass fishery.	Acceptable to general user group at this time.
II Increase harvestability of bass.	None.	Eliminate present size limit in Division 10, which does not serve any biological purpose.	At present not required.	Would generate public disapproval without increasing general harvests. Anglers generally do not wish to harvest very small fish.
		Extend open season to November 30th.		Would provide some insignificant increase in bass based recreation.
		Extend open season to February 28th.		Would generate serious public disapproval. Would also lead to major increases in bass harvests as soon as anglers learned how and where to fish for them in the winter.
III Increase production of bass to potential yield.	Panfish/gamefish imbalance.	Encourage more intensive harvests of panfish through derbies to remove competative species.	Not required at this time. Would increase the attractiveness of District waters for non-resident anglers. Desirable for tourism.	Only moderately effective. However, it would serve as a learning experience for residents and create greater utilization of the panfish resource.
		Implement restricted coarse fish and panfish Commercial Fisheries, in waters where fish sizes are adequate for marketability. Live gear only.	As above.	May generate serious sports angler opposition, but may benefit game fish production. Extensive vandalism expected (Thurston).
		Carry out coarse fish removals under a C.F.I.P. programme, in pickerel-pike-bass waters.		Effectiveness of coarse fish removals other than bullheads not yet established. C.F.I.P. group interest frequently fades after second year.

Table 21.3 EVALUATION OF MANAGEMENT OPTIONS
4 of 10
A GAME FISHES HABITAT

Warmwater Lakes Fish Communities:

Projected Use	51,697 kg	106,920 Angling Days
Potential Yield	75,522 kg	174,056 Angling Days
Allowable Yield	29,213 kg	80,288 Angling Days
Present Use	45,952 kg	95,040 Angling Days

3) Issue: Lake Habitat Preservation and Improvement

The allowable yield of all game fishes is considerably lower in District lakes than the potential yield. A major factor in the apparent under-production appears to be habitat related.

	Optional Strategies	IDENTIFICATION: Problems	Optional Tactics #	EVALUATION: Strategies	Tactics
I	Improve degraded or inadequate pickerel spawning substrate.	Pickerel stream spawning beds obstructed by beaver. White Lake, Black Lake, Clayton Lake, Rivon, 9th line of Drummond, also possibly Bennett Lake, Christie Lake, & Gillies Lake.	Remove beaver dams in critical locations in early March, through C.F.I.P. and encourage local trappers to trap. Encourage clubs to 'Adopt a spawning bed'.	Proven to be quite effective where stream spawning facilities are relatively few in number.	C.F.I.P. possibly only where local clubs take an interest in hand, unpleasant annually recurring work. This is not always the case.
		Existing pickerel stream spawning bed inadequate on Mississippi Lake, Rideau River at Burritts, Edmunds, Kilmarnock, Dalhousie Lake, Park Lake, Bennett Lake, Clayton Lake, White Lake, Flower Bound Lake, & Clyde Lake.	Improve existing or construct new spawning substrate in suitable locations by means of C.F.I.P. projects, or through Fisheries Habitat Enhancement Funding.	Proven effective only if carried out at an adequately large scale.	Utilize Junior Ranger projects, C.F.I.P. projects, Sec. 38 or Capital Works projects where funding permits. NOTE: C.F.I.P. or J.R. suitable only for small projects. NOTE: Sec. 38 funds seldom available during summer construction season.
II	Improve pickerel and bass shoal spawning areas.	See water levels.			
III	Protect shoreline and littoral area, ie: spawning or nursing grounds, from alteration or degradation, with particular emphasis on pike and bass spawning areas.	Construction of private beaches, docks, shoreline clearances, dredging, retaining wall construction, aquatic plant removal, without approvals under the Fisheries Act, the Lakes & Rivers Improvement Act.	Restrict all further sales of remnant Crown-owned shoreline reserves to private land owners on all Class II lakes.	Crown ownership on virtually all lakes in the District considerably less than 25%, many waters 0%. Field inspections reveal that private shorelines are invariably altered with, or without approvals under existing legislation.	Requires S.E.O. 54.

A GAME FISHES HABITAT

Optional Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
		Establish twice annual shoreline inspection programme on Class II lakes, to document shoreline alterations, and advise landowners in shoreline protection and prosecute unauthorized alterations where necessary.	As above.	Requires fisheries management staffing in combination with other fisheries management requirements. Portion of one 'A' salary position, plus two summer 'b' salary positions, equipment, and transportation.
		Encourage municipalities to legislate appropriate set backs for construction of dwellings, septic tanks, roads, boat houses, with variances according to slope, soil depth, soil type, etc.	As above.	May prove unpopular. May require standards in excess of current practice, and in excess of standards set by Health Units, and M.O.E.
		Outline areas of aggregate resource production value, and request Official Plan Amendments to establish Environment Protection Zones which permit only minimum disturbance on development.	As above.	Unpopular with general public. May lead to O.M.B. hearings, and require extensive background preparation.
IV Re-habilitate degraded shorelines in areas of intensive development.	Densely developed shorelines show visible signs of alterations, and are often subject to erosion, dredging, retaining wall construction, infilling, etc.	Assist lake associations to organize self-help action groups, who re-plant erosion resistant vegetation, and carry out general volunteer habitat improvements.	As above.	Pilot project presently operating successfully on Christie Lake. Other lake associations interested. Requires intensive M.N.R. leadership, ie: one 'B' salary contact staff, 4 months/year.

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EVALUATION OF MANAGEMENT OPTIONS

SPORT FISH - GAME FISH HABITAT

4) Warmwater Lake Fisheries
Issue: Water Level Management

Water level management has a pronounced impact upon fish production in the Carleton Place District. Inappropriate historical dam construction has served to impede fish migrations, eliminate currents on spawning beds, de-water nursing on spawning areas in critical periods. Water level manipulation or stabilization usually occurs for reasons other than fisheries management.

	IDENTIFICATION		EVALUATION	
Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I Implement rule curves favouring natural pickerel and pike reproduction on lakes subject to level and flow manipulation: Dalhousie, Clayton, Bennett, Pike, Joe, Widow, Park, Kerr, Mississippi, White, Horne, Stump, Christie.	De-watering of spawning areas during incubation period.	Maintain constant flow over pickerel stream spawning sites between March 20th and May 10th at Dalhousie, Joe, Christie, & Horne.	Requires intensive liaison between M.N.R., Ontario Hydro, Mississippi Vally Conservation Authority and lake user groups.	Possible conflicts because of conflicting mandates of various organizations, such as flood control, hydro generation, water conservation for summer flow augmentation.
	Backflooding of pike and maskinonge spawning shallows is a frequent problem, interfering with incubation and wave action, causing hatching mortality.	Refrain from backflooding pike and maskinonge spawning areas under deep water, after spawn is deposited in shallows between March 20th and April 30th in White, Bennett, Kerr, Clayton, Pike, Horne, Park, Mississippi, Bobs, Stump Lakes.	As above.	Backflooding is normally caused after pre-spring water drawdowns in order to provide reserve catchments for spring floods. Possible conflicts with water control agencies.
		Retain early April water levels on controlled lakes, Bennett, Pike, Widow, Park, Kerr, Mississippi, White, Horne, Stump through April, May and early June to facilitate hatching of pike, pickerel, perch, bass and sunfish.	As above.	Review existing water management plans, and implement in concert with other agencies.
II Implement rule curve resulting in algae control along lake shores and reduction of summer stagnation.	Summer water level stabilization causes production of calcareous algae on rocky shoals. Mid summer stagnation causes intensive micro-organic growth resulting in siltation of gravelly shores, algae blooms, high biological oxygen demand.	Schedule gradual incremental drawdowns to a maximum of 75 cm between June 20th and September 1st in White, Mississippi, Pike and Bobs Lakes.	Requires extensive public relations work with lake associations, Parks Canada, Rideau Vally Conservation Authority, Mississippi Vally Conservation Authority, Town of Carleton Place, Ontario Hydro.	Review existing water management plans and implement in co-operation with other agencies. Establish a fisheries representative on water management committies of other agencies.
III Implement rule curve favouring bass production on Clayton Lake.	Mid-summer water demands for downstream flow augmentation reducing available bass habitat.	Stabilize level as best as possible throughout summer and winter.	Requires public relations work with downstream riparian owners, and Mississippi Vally Conservation Authority.	Include user groups in future fisheries workshops. Review and revise M.N.R. Clayton dam operating plan.

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EVALUATION OF MANAGEMENT OPTIONS

SPORT FISH - GAME FISH HABITAT

	Optional Strategies	IDENTIFICATION Problems	Optional Tactics ¢	EVALUATION Strategies	Tactics
IV	Stabilize fall and winter levels.	Late fall and winter drawdowns are causing fish kills, bullfrog kills and muskrat mortality.	Stabilize waters at mid September level on all controlled lakes.	May conflict with objectives of other agencies, Ontario Hydro, Rideau Canal Conservation Authorities.	Liaison with other agencies.
V	Dam construction.	The basic objectives for dam construction are usually contrary to fisheries interests.	Analyse the impact upon fisheries by any planned new dam, and formulate amendments or objections. Object to potential dams below Joe, Dalhousie, Otty, Christie, Black, Robertson, Patterson, Clyde, Flower, Gillies Lakes.	With the exception of very rare situations, not recommended for fisheries management purposes.	Liaise with all potential dam construction agencies, such as Conservation Authorities, Municipalities, Parks Canada. Advise respective lake associations about the disbenefits created for 'their' lakes by dams.

Table 21.3 **EVALUATION OF MANAGEMENT OPTIONS**
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A **SPORT FISH**

Warmwater Lakes Fish Communities:

Projected Use	- 19,000 kg	40,000 Angling Days
Potential Yield	- 33,000 kg	50,000 Angling Days
Allowable Yield	- 9,000 kg	18,000 Angling Days
Present Use	- 17,000 kg	35,000 Angling Days

5) Issue: Recruitment and Supply of Pickerel

Natural recruitment into the fishery is influenced by exploitation by habitat, by water levels, and by species composition (see above). Artificial recruitment through hatchery support for maskinonge, pickerel, bass and pike has not yet been accepted as a reliable, economic, and effective management tool. Recruitment may be a problem on some District waters.

	Optional Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
I	Relieve harvest pressure to increase number of parent fish.	Shortage of parent fish.	Change pickerel size limits (5).	Refer to exploitation.	Issue #1, item III, above.
			Implement pickerel (5) size limits.	Refer to exploitation.	Issue #1, item III, above.
II	Increase availability of alternate target fish.	As above.	Remove pickerel size limit.	Refer to exploitation.	Issue #1.
			Remove bass size limit (5).	Refer to under-utilization.	Issue #2, item II, above.
III	Provide spawning areas.	Inadequate spawning areas.	Protect existing spawning habitat (20).	Refer to habitat.	Issue #III.
			Re-build degraded spawning habitat (15).	As above.	
			Construct new spawning habitat (15).	As above.	
IV	Provide appropriate water regime.	Pre-hatching mortality siltation of spawning grounds.	Liaise with appropriate agencies (18), develop rule curves favourable to spawning fish.	Refer to water levels.	Issue #4, items I & II.
V	Adult transplants.	Species not present	Trapnet 25 to 50 adult pickerel, pike, smallmouth bass or largemouth bass respectively, and stock into candidate waters (19).	Useful for introductions only. Not suitable for Carleton Place District which has no shortage of pickerel waters.	Moderately inexpensive if combined with assessment programme.
		Shortage of spawners.	As above (19).	Not very suitable for parent fish augmentation. Fish prefer to home to their own place of origin.	Feasible, if a land locked sanctuary lake is used as a source.
		Shortage of fish for general angling.	As above (19).	Not suitable for general angling augmentation.	Extremely expensive.

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EVALUATION OF MANAGEMENT OPTIONS

SPORT FISH

Optional Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
VI Stocking of Provincial hatchery fish (pickerel).	Shortage of parent stock and/or shortage of angling fish.	Stocking of pickerel-eyed eggs from Provincial hatchery (19).	Very popular, not very suitable for coolwater and warmwater fish species. Cannibalism of fingerlings.	Proven to be largely ineffective except on lakes lacking natural spawning habitat. Required stocking rate 10,000 EE/ha/yr. Stock requirements astronomical (ie: 25 million per year for a moderate sized lake). May destroy indigenous gene-pool.
	Shortage of desired fish.	Stocking of pickerel. July fingerlings from Provincial hatchery (19).	Very popular, but still experimental and unproven. Earlier efforts by W.C. Cheshire 1961-1969 showed low impact in lakes lacking natural reproduction, and no impact in lakes with stream spawning capabilities.	Expected to be quite ineffective in all lakes with natural spawning beds. Requires minimum of 100 July fingerlings/ha/yr. (or 25,000 fingerlings per year for a moderate sized lake). Logistically and economically unsound. Production limited. Endangers local gene-pool.
	As above.	Stocking of large fall fingerlings from Provincial hatchery (19).	Experimental and unproven.	Product extremely difficult to raise, even in small numbers. Require minimum stocking rate of 30 fall fingerlings/ha. Preliminary assessment shows total lack of success. Endangers local gene-pool. Not recommended except for experimental management.
VII Stocking of C.F.I.P. hatchery pickerel.	As above.	C.F.I.P. Produce pickerel EE or fry through stream bank hatcheries or 'tupperware walleye' projects (19).	Extremely popular but ineffective.	Little evidence that this kind of project has improved an angling fishery. Examples of rearing failures exist. Endangers indigenous gene-pool. Unable to produce the large numbers required.
	As above.	C.F.I.P. Produce pickerel July fingerlings in private rearing ponds, from fry raised in private stream bank hatcheries (19).		To date, multiple rearing failures. Even if rearing failures are overcome the technique will be most suitable for small lakes because of large numbers required. Not effective for augmentation in any waters with natural spawning capabilities. May endanger indigenou gene-pool unless local stock is used.

Table 21.3 EVALUATION OF MANAGEMENT OPTIONS
10 of 10
A SPORT FISH

Warmwater Lakes Fish Communities:

Projected Use	- 19,000 kg	38,000 Angling Days
Potential Yield	- 22,000 kg	50,000 Angling Days
Allowable Yield	- 12,000 kg	27,000 Angling Days
Present Use	17,000 kg	35,000 Angling Days

6) Issue: Recruitment and Supply of Northern Pike

The present use of pike exceeds the allowable yield. Northern pike are presently managed on the basis of natural recruitment only. Some historical spawning marshes are being degraded by agricultural drainage and shoreline development. Hatchery production of pike is currently being developed (Graft, D.R. 1978).

	IDENTIFICATION		EVALUATION	
Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I Relieve pike harvest pressure to increase number of spawners.	Perceived shortage of parent fish.	Reduce season (4). Eliminate second line for ice fishing (9). Reduce creel limit (6). Implement experimental slot size limit (5).	Shortage of spawners not yet proven. Experimental options.	Would curtail recretional opportunities. Some public opposition. See issue #1, item II. See issue #1, item III.
II Protect pike spawning streams & meadows.	Agricultural drains eliminating spawning marshes.	Review drains plans prior to construction, and include dyking requirements of spawning areas, complete with operating plans (25).	Liason with Ministry of Agriculture & Food required.	Past experience regarding control of municipal drains extremely unsatisfactory.
III Protect lake shore pike spawning area.	Lakeshore alterations by private cottage owners, etc.	Implement public relations programme involving township building inspectors and lake associations (25).	Past track record not good.	See issue #3, item III. May require active enforcement.
IV Provide appropriate water regime.	Pre-hatching mortality of spawn in waters regulated by dams.		Liaison with water control agencies.	See issue #4, item I.
V Adult transplants.		Capture and transfer during normal assessment surveys (19).	Usefull for introductions only.	Anticipate high transfer mortality. Not recommended.
VI Stocking of Provincial hatchery fish.	Perceived shortage of fish.	Build Provincial pike hatchery (19). Develop spawn taking and rearing techniques. Stock experimental lakes.	Not possible at present state of technology.	No hatchery in existence, no stock available, technique as yet unknown.
VII Stocking of C.F.I.P. hatchery pike.	Lack of technology.	N/A.	N/A.	N/A.

Table 21.4 **EVALUATION OF MANAGEMENT OPTIONS**
1 of 3
A **SPORT FISH**

Warmwater Rivers & Streams:

Projected Use	72,000 kg	89,000 Angling Days
Potential Use	113,000 kg	138,000 Angling Days
Allowable Yield	91,000 kg	108,000 Angling Days
Present Use	63,000 kg	76,000 Angling Days

1) Issue: Under-Utilization

The present warmwater river and stream fishery appears to be under-utilized for all sport fish species as well as panfish and coarse fish species. Reasons are high productivity of the Mississippi and Rideau systems and the 'Big Waters Syndrome' of the Ottawa River system.

	IDENTIFICATION		EVALUATION	
Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I Provide access.	There is no serious access problem to rivers.	Develop access points along unopened road allowances.	Not seriously required.	Not required at this time.
II Encourage greater use of the Rideau and Ottawa rivers.	None.	Direct derbies away from lakes and to rivers.	Not really required. Is alreay occurring without promotion.	May lead to sectional over-harvests, notably on the Burritts to Manotick reach of the Rideau River.

2) Warmwater Rivers & Streams
Issue: Water Management

The Rideau River as well as portions of the Ottawa, Clyde and Mississippi rivers are subject to water management which can be highly detrimental to fish spawning, production, and survival.

	IDENTIFICATION		EVALUATION	
Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I Clarify details of each particular river problem.	Inadequate information at present.	Trapnet surveys, loopnet surveys, creel census, aerial boat counts.	Subject to funding.	Subject to funding.
II Establish desirable rule curves for each river system and implement suitable flow regimes.	Unsatisfactory rule curve for Rideau River. No rule curve for any other river.	Liaison with water control agencies.	Requires solution to item I above.	Contact Conservation Authorities, Ontario Hydro, Parks Canada.
	Mississippi River at High-Falls, water shut-off prior to end of incubation period of pickerel and pike.	Liaison with Ontario Hydro.	1978 agreement to be re-newed.	Require constant flow of water over pickerel spawning substrate from March 25th to May 15th.

Table 21.4 EVALUATION OF MANAGEMENT OPTIONS
2 of 3
A SPORT FISH

Optional Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
As above.	Ottawa River at Chats Lake, water shut-off prior to end of incubation period of pickerel and pike.	Liaison with Ontario Hydro. Investigate alternate engineering solution.	Requires solution to item 1, above.	As above.
	Clyde River at Lanark and Widow Lake dams, water shut-off prior to end of pickerel incubation.	Liaison with Mississippi Valley Conservation Authority.	1977 memorandum to M.V.C.A. to be re-newed.	As above.
	Rideau River at Edmunds, Kilmarnock, Merrickville, Burritts locks, water shut-off prior to end of pickerel and pike incubation.	Liaison with Rideau Canal Office of Parks Canada.	Requires M.N.R. Regional Co-ordination.	As above.
	Tay River at Bolingbrooke, as above.	As above.	Already operational.	As above.
	Rideau River below Burritts. Present establishment of navigation water levels by May 10th too late to facilitate effective maskinonge spawning and hatching. Backflooding problem.	Liaison with Rideau Canal Office. Plan to fill the Burritts to Manotick reach no later than April 20th.	Regional Co-ordination required.	May cause some complaints from adjacent land owners.
	Rideau River below Burritts. Present late winter draw-downs in order to supply water 'to cut the keyes', resulting in winterkills.	Investigate with Parks Canada and City of Ottawa if alternate method for canal management can be developed.	To be planned for future.	Future possibilities.

Table 21.4 EVALUATION OF MANAGEMENT OPTIONS
3 of 3
A SPORT FISH

3) Warmwater Rivers & Streams
Issue: Habitat Shortcomings and Pollution

Intensive shoreline development along the lower Rideau and Ottawa Rivers are resulting the loss of important natural littoral habitat. This in turn leads to more erosion and accelerated alterations. Some natural habitat shortcomings exist, which could be corrected.

	IDENTIFICATION		EVALUATION	
	Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I	Upgrade existing unsatisfactory pickerel spawning substrate at some or all of the following locations: Poonamalie, Sly's, Merrickville, Andrewsville, Clowes and Manotick Locks, Port Elmsley, Black & Burritts Rapids.	Insufficient substrate or improperly arranged substrate.	Investigate each potential site, design and draft improvements, and construct gradually under Habitat Re-habilitation Budget. Propose as C.F.I.P. projects for adjacent clubs, if and where clubs are interested.	Liaison with Parks Canada required.	Commence budgeting under Capital Works, and implement as funds become allocated. Preferred approach. Liaison with Smiths Falls Fish & Game Club and Carleton Grenville Fish & Game Club.
II	Restrict the use of steel retaining walls along the Rideau River. Control dredging and filling along Rideau & Ottawa Rivers.	Unproductive littoral zone, reduced forage base.	Enforcement needed. Public relations desirable. Contact contractors.	Liaison with Parks Canada on any works along the river front.	Multiple field inspections and increased enforcement required.
III	Attempt to control agricultural and municipal pollution.	Fish kills in Jock River in late summer. Excessive foam and odour at Port Elmsley in April.	Investigate all incidents in concert with the Ministy of the Environment and lay charges if warranted.	Liaison with Ministry of the Environment required.	Enforcement effort required.

Table 21.5 **EVALUATION OF MANAGEMENT OPTIONS**

B BAIT FISH

Target	15 harvesters	60,000 Dozen
Potential	15 harvesters	80,000 Dozen
Present	33 harvesters	40,000 Dozen

1) Issue:

Excessive numbers of harvesters; inefficient operations; untimely supplies; unable to fill demand in July and August.

	IDENTIFICATION			EVALUATION	
	Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I	Harvest wild natural surplusses.	Present operations too small. finance modern full-time operations.	Eliminate 5 licences by attrition and assign larger, exclusive harvesting areas (Tactic #30).	Not readily accessible. Natural stocks with surplusses available.	May have to defend before G. & F. Hearing Board if applicants are refused.
		Bait fish mortality.	Encourage greater use of Ottawa River.		May require extensive experimentation. Ottawa River minnows fragile.
II	Artificial production.	Unfilled demand, insufficient local supply.	Encourage establishment of private bait fish hatcheries.	Little technical advice available. Major capital expenditure required.	Little apparent interest among licencees.
		Wild stocks not readily harvestable in mid summer.	Encourage use of municipal sewage lagoons as rearing ponds.		Little interest among licencees. Possibly aesthetic opposition from bait fish buyers.
III	Importation.	Insufficient local supply.	Import Ontario stock (Lake Erie).	May endanger local fisheries through unauthorized live release of diseased or exotic fish.	No requirements for inspection or certification. Staff have observed goldfish in Lake Erie supplies.
			Import Quebec stocks.	Contrary to existing policy because of perceived danger to import diseases and undesirable exotic species.	Species composition may be more comparable to Carleton Place situation than Lake Erie stock. Must be certified to cross Provincial boundary. Requires Minister's Import Permit.
			Import U.S. stocks.	Contrary to existing policy because of perceived danger to import diseases and undesirable exotic species.	Poor health records. Foreign species composition. Requires Import Permit.

Table 21.6 EVALUATION OF MANAGEMENT OPTIONS

C COMMERCIAL FISH

Target	- 5,000 kg.	3 Licences
Potential	- 10,000 kg.	4 Licences
Present	- 1,500 kg.	1 Licence

1) Issue:

The Carleton Place District presently contains only one commercial food fishery. This operation is extremely inefficient, partially inactive, poorly equipped and poorly motivated. One species, sturgeon, suffers from over-exploitation. Course fish are under-harvested.

	IDENTIFICATION			EVALUATION	
	Optional Strategies	Problems	Optional Tactics #	Strategies	Tactics
I	Activate the existing operation on the Ottawa River.	Present only licencee only partially active, and poorly equipped. Not interested in harvesting alternate species.	Give licencee a minimum production target by species for one year. If under-achieved, review licencee, curtail fishing area, or cancel.	May or may not result in interim improvement. Not expected to result in long term alteration.	Will require total documentation. If cancellation considered, may result in appeal to O. & F. Hearing Board.
II	Consider licencing additional operators on the Ottawa River.	Species like sunfish, rockbass, perch, mooneyes, drum, eels presently not utilized.	Licence experimental electro-fishery in one or both Ottawa River commercial fishing quota zones.	May result in additional harvest. Could cause social conflict if new licencee was not local.	Desirable option provided an interested operator can be found. Subject to contaminant testing.
III	Licence a commercial fishery on the Rideau River between Edmund's Locks and Manotick.	Extremely high bullhead population presently barely used. Panfish and carp also not utilized.	Licence a loop-net fishery to operate in April-May and September-October with a quota of: 1,000 kg. bullheads 100 kg. perch 100 kg. sunfish unlimited carp.	Anticipate some angler opposition. However, will be supported by O.F.A.H.	Some public relations work required. Will precipitate more enforcement problems. Vandalism expected.
IV	Licence periodic restricted commercial fisheries in inland lakes to re-balance heavily exploited sports fishery.	Periodic extremely high, over-aged bullhead populations in many inland lakes, un-utilized herring population in Christie and Dalhousie Lakes. Large redhorse population in Mississippi River.	Trapnet or loopnet licences, with special conditions, and stipulated to be non-renewable for White, Pike, Black, Clayton, Taylor, Bennett, Mississippi, Christie, & Dalhousie Lakes. Individual lake quotas by species required.	Anticipate some angler and lake association opposition. If considered desirable for game fish management purposes, may have to be instituted without public consensus. Already O.F.A.H. approved.	Public relations work required. Will create some complaints. Necessitate enforcement. Valdalism expected.

Table 21.7
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B

EVALUATION OF MANAGEMENT OPTIONS

SCIENTIFIC AND MANAGEMENT INFORMATION

1) Issue:

Trend through-time data are required for the continued management of all major fisheries in the District. Minor fisheries are managed on a type-lake basis.

	IDENTIFICATION		EVALUATION	
Optional Strategies	Problems	Optional Tactics @	Strategies	Tactics
I Update lake and stream inventories.	Water quality changes due to nutrient loading and land-use change.	Winter chemical profiles all trout lakes (36a) M.N.R. on Sec. 38 crew.	Prefer 10-year review cycle.	2 man crew, combine with creel census.
	Re-invasion of undesirable species.	Summer chemical profiles. Minimum gill netting (38a), M.N.R. crew only.	As above.	2 man crew for 3 months every year expensive, but reliable.
II Cottage count & shore patrols of major lakes and rivers.	Constant ongoing unauthorised shoreline alterations by cottagers.	Twice annual shoreline cruising and mapping of all major fisheries, ie: Rideau, Pike, Black, Farren, Silver, Otty, Mississippi, Bennett, Dalhousie, Christie, White, and Constance Lakes plus Rideau, Ottawa, and Mississippi Rivers, M.N.R. crew only.	Combine with P.R. programme. Essential if shoreline and littoral zone are to be protected.	2 man crew for 6 weeks every summer. Student training programme, or Experience project.
III Collect harvest data.	Require data to align harvest with production.	Stratified summer creel census (CREESTS), 5 lakes/year in a 3 year return cycle, M.N.R. crew.	No alternate strategy available which will provide reliable information.	2 man crew for 16 to 20 weeks/summer can include chemical sampling and bass nest counts. Experience project.
		Stratified winter creel census (CREESTS) of 5 to 8 waters/year in a 6 year return cycle, M.N.R. on Sec. 38 crew.	As above.	2 man crew, Sec. 38 project.
		Trout stream creel census May and half of June in a 6 year return cycle on 8 streams, M.N.R. crew , Sec. 38 crew, or C.F.I.P.	As above.	1 man sampling crew, M.N.R. staff or Experience project moderately labour intensive. C.F.I.P. frequently unreliable.
	As above.	Voluntary creel by selected co-operators from the public or C.F.I.P.		No quality control, usually no consistency. Repeatedly tried and found unsatisfactory.
		Creel boxes at strategic stream access points.		As above, plus vandalism.

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D

EVALUATION OF MANAGEMENT OPTIONS

SCIENTIFIC AND MANAGEMENT INFORMATION

	Optional Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
IV	Establish angling pressure data.	Require data to obtain total overview of recreation provided.	Aerial boat count, 36 stratified flights covering approximately 30 to 40 fisheries. Return cycle once every 5 years.	No alternate strategy.	Accurate, least expensive method per hectare of water. Suitable for large and small water bodies.
V	Evaluate N.W. stocking impact. Ellbower, Joe, Park, Otty, White, and Robertson Lakes.	Cost-benefit and success data required.	Trapnet surveys pre-stocking and in year 4 and 8 post stocking. Also requires surveying control lake.	Background weak and stocking already in place.	M.N.R. crew only. Repeat of previous work. 6 - 8 year series minimum.
VI	Recurring fishery status assessments.	Required to balance harvest production, also required to assess impact of habitat re-habilitation and water regime alterations.	Hoopnet or trapnet surveys in 5 year intervals on all major fisheries. 3 or 4 per year.	No alternative strategy available for accurate data on population trends, catchability, age structure, growth rate changes, age at maturity changes, evaluation of season change impacts, species compositions, habitat improvement effects, water regime adjustments.	Attempt to organize to carry out 2 surveys in spring and 2 in fall of every year. Requires M.N.R. crew. If possible should be scheduled concurrently with creel census on respective waters.
			Electrofishing to determine young of the year class strength.		Requires close scheduling with assessment unit Will not give information on status of catchables in angling fishing. Good indicator of recruitment.

Table 21.8 EVALUATION OF MANAGEMENT OPTIONS

E PUBLIC AWARENESS & INFORMATION

1) Issue:

Lack of public understanding of fisheries management principles and information needs are one of the key factors affecting public concepts and demands.

Absence of knowledge is evident behind a majority of shoreline alteration proposals. An increase of public and municipal understanding could reduce the need for administrative or punitive action.

	Optional Strategies	IDENTIFICATION Problems	Optional Tactics #	EVALUATION Strategies	Tactics
I	Generate public and political support through news releases or hand-outs and media coverage.	Fisheries objectives are often unclear to users and politicians alike.	Attempt to keep public fully informed about resource status through news releases, 4 times per year. #25a-e	Considerable staff time required.	Requires scheduling and intensive preparations.
		Factual knowledge on fisheries management is virtually non existent on a broad public base.	Compile fisheries information hand-out material from creel census and survey data. #25e		
		Political pressure for short term gain rather than long term solutions.	Arrange for media coverage on fisheries projects, press, T.V., radio. #25		
II	Promote public involvement.	Public feels un-involved, no proprietary attitude.	Motivate clubs to carry out small projects such as stream improvements, trout lake reclamation, spawning bed enhancement #25b		C.R.I.P. projects. Require considerable staff time. Only suitable for minor habitat management.
III	Promote public appreciation of costs and complexity.	Public generally not aware of the complexity of divergent responsibilities and expectations from the resource base.	Attend club meeting, lecture at schools & workshops, organize 'Teach a Teacher' workshop. #25b,c	As above.	Considerable staff involvement.
IV	Promote District staff understanding of fisheries matters.	Our staff are our best P.R. mechanism.	One fisheries presentation to staff per year. #25c	As above.	
V	Inform and motivate Lake Associations.	Individual contracts too time consuming and ineffective.	Organize one annual Lake Association workshop and invite representatives of all known lake groups.	Utilize the association's own self-help and mailing programme. Instill a spirit of individual responsibility and husbandry to lake user groups.	Requires detailed and careful preparation. Invitations to leaders of individual user groups only. May serve to generate self-policing and self-help.

Table 38.0 SUMMARY OF FISHERIES RESOURCE DATA

			TOTAL POTENTIAL YIELD		ALLOWABLE YIELD BY SPECIES ASSEMBLAGE KG/YR											
					Rainbow, Brown Trout Brook Trout		Splake Lake Trout		Pike Pikerel		L.M. Bass S.M. Bass		Panfish Perch		Other	
		Surface		Angling		Angling		Angling		Angling		Angling		Angling		Angling
	#	Area (ha)	Kg.	Days	Kg.	Days	Kg.	Days	Kg.	Days	Kg.	Days	Kg.	Days	Kg.	Days
Coldwater Lakes	21	1,948	8,000	11,000	450	600	1,400	2,800	2,500	4,400	1,450	3,300	800	330	1,000	1,100
Warmwater Lakes	80	11,753	94,000	193,000	0	0	10	10	21,000	45,000	16,500	36,000	35,000	16,000	20,000	11,000
Coldwater Streams	14	28	220	230	160	200	0	0	0	0	0	0	0	0	0	0
Warmwater Streams	91	8,735	113,000	163,000	0	0	0	0	37,000	52,000	30,000	42,000	12,000	7,000	12,000	7,000
SUBTOTALS	206	22,190	215,220	367,000	610	800	1,400	2,800	60,500	101,400	48,000	81,300	48,000	23,000	33,000	19,000
Unsurveyed Lakes	75	420	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Private Ponds	50	5	50	69	50	69	0	0	0	0	0	0	0	0	0	0
TOTALS	331	22,615	216,000	367,000	660	870	1,400	2,800	60,500	101,400	48,000	81,300	48,000	23,000	33,000	19,000

CARLETON PLACE DISTRICT FISHERIES MANAGEMENT PLAN
BACKGROUND INFORMATION AND POTENTIAL MANAGEMENT OPTIONS
Q U E S T I O N N A I R E

Having had the opportunity to review background fisheries information, problems and issues, and potential management options, we solicit your thoughts or suggestions.

To assist in your response we have developed this questionnaire. Your comments will be considered in preparing the draft fisheries management plan.

Please return your questionnaire to the District Office by April 10, 1987.

1. A number of problems and issues have been identified in the report. We would like you to review these and to indicate below how important you feel these are.

		Not Important - Very Important 1 2 3 4 5
(i)	Over-exploitation	_____
(ii)	Introduction of exotic/non native fish species or strains	_____
(iii)	Illegal harvest	_____
(iv)	Loss of fish species or genetic stocks	_____
(v)	Inadequate sources of hatchery reared fish	_____
(vi)	Habitat loss and/or degradation	_____
(vii)	Under-utilized fish species and/or habitat	_____
(viii)	Limited access to water (fishing sites)	_____
(ix)	User conflicts	_____
(x)	Conflicting land/water uses	_____
(xi)	Lack of public awareness and unrealistic resource demands	_____
(xii)	Inadequate scientific knowledge	_____

QUESTIONNAIRE

2. Do you feel we have identified all of the potential management strategies and tactics to address problems and issues? Yes..... No.....

   If No, please list additional strategies and tactics below.

   _____

   _____

   _____

   _____

3. If you feel any problems or issues have been missed, please list them below and indicate how important you feel they are.

PROBLEM/ISSUE	Not Important - Very Important 1 2 3 4 5
(i)	
(ii)	
(iii)	
(iv)	

4. Other comments or suggestions.

   _____

   _____

   _____

   _____

Thank you for your response.

Please provide your name and address so that we may inform you when a draft management plan is prepared and invite your review and comments.

_____

_____

_____

_____

PLAN DE GESTION DES PÊCHES
DU DISTRICT DE CARLETON PLACE
Renseignements généraux
et
stratégies de gestion facultatives
1985 - 2000
Résumé

Ontario
Ministry of Natural Resources
Hon. Vincent G. Kerrio
Minister
Mary Mogford
Deputy Minister

Le ministère des Richesses naturelles a amorcé un processus de planification en vue d'établir le mode de gestion des pêches dans la province. Le présent document résume divers renseignements sur cette ressource et présente des méthodes possibles de gestion pour le district administratif de Carleton Place. Après un examen public, une ébauche d'un plan de gestion des pêches sera préparée. On y déterminera l'orientation à long terme (l'an 2000) que prendra la gestion des pêches et on y précisera des programmes de gestion à court terme (cinq ans) qui seront mis en place dans le district de Carleton Place.

Le présent document porte sur les terres et les eaux d'une superficie totale de 5 891 kilomètres carrés qui relèvent du district de Carleton Place, du ministère des Richesses naturelles. Toutes les eaux du district on été prises en considération dans ce programme.

L'ébauche du plan devrait être prête pour fins d'étude en mars 1987.

Un rapport détaillé, qui constitue le fondement de l'orientation de la gestion décrite dans le présent plan, a été préparé. On peut se procurer ce document d'appui pour fins d'étude auprès du bureau de district de Carleton Place.

Territoire

Le district de Carleton Place englobe le comté de Lanark et la municipalité régionale d'Ottawa-Carleton.

Le territoire a une superficie totale de 589 100 hectares et compte environ 669 000 résidents permanents (renseignements généraux, plan d'aménagement du territoire du district, Lanark et Ottawa).

Les deux tiers de la partie nord du comté de Lanark font partie du bouclier précambrien. Le sol est sablonneux et le roc affleure à bien des endroits. Les pentes raides ne sont pas rares et le soubassement du terrain est souvent découvert. L'eau des lacs de cette région varie de légèrement acide à légèrement alcaline.

Le sud du comté présente un terrain qui est moins accidenté où le drainage se fait généralement mal. Le soubassement est composé surtout de grès et de calcaire. Les sols sont plus épais que dans la région du bouclier.

Sensibilité aux pluies acides

Les sols du district ont une bonne capacité tampon et les lacs sont peu sensibles aux pluies acides. Néanmoins, d'après les résultats de certaines études récentes, l'acidification pourrait avoir des effets sur les régions marécageuses et les eaux peu profondes, et par conséquent sur certaines formes de vie aquatique.

Bassins hydrographiques

Le district comprend 191 lacs et 105 rivières/cours d'eau/ruisseaux. Ils ont une superficie totale d'environ 23 000 hectares. Les quatre grands cours d'eau du district coulent vers l'est et le nord, et se déversent dans la rivière des Outaouais : ce sont les rivières Mississippi, Rideau, Madawaska et South Nation.

Prises

Bon nombre de cours d'eau du district de Carleton Place ne sont présentement pas en mesure de produire leur récolte potentielle en raison de la pêche excessive qui se pratique depuis longtemps ou de la détérioration de l'habitat.

Le tableau 9 donne un aperçu de la récolte potentielle non ajustée, des prises permises et des prises actuelles.

Les possibilités réalisables, permises et actuelles de pêche à la ligne sont comparées. Les résultats sont présentés par espèces et par groupes d'espèces (espèces pêchées, crapets, poissons communs).

Le tableau 10 indique la récolte potentielle et les prises permises dans le district. Comme la plupart des cours d'eau renferment diverses espèces, certains lacs figurent dans plus d'une catégorie.

Récolte potentielle = production annuelle possible en théorie = objectif à long terme;

Prises permises = prises actuellement permises sans détériorer davantage les ressources;

Prise actuelles = prises moyennes actuelles par année;

Possibilités de pêche à la ligne = pêcheur à la ligne/jour = quatre heures/lignes.

Emplacements importants

Il existe dans le district un certain nombre d'emplacements importants qui sont essentiels pour pouvoir atteindre les objectifs du district. Ces emplacements comprennent notamment les aires de frai et d'élevage, les habitats de poissons adultes, qui peuvent être un cours d'eau, un ensemble de rapides, une seule baie ou un banc d'herbes aquatiques. Une fois connus, ces emplacements seront enregistrés dans la section du lac ou du ruisseau en question.

À l'heure actuelle, les pêches à la truite de lac, au maskinongé et au doré dépendent presque uniquement de la reproduction naturelle. Les aires de reproduction sont très localisées et sont vulnérables a) aux prises illégales et b) à la détérioration de l'habitat par l'homme.

L'habitat de frai pour d'autres espèces n'est peut-être pas très localisé. Il est néanmoins essentiel pour le maintien de la pêche.

Le brochet va frayer dans les bas-fonds herbeux des lacs et des rivières. D'importants emplacements sont caractérisés par des touffes de laîche à une profondeur de 0,5 mètre. L'incubation du brochet exige le mouvement du courant ou l'action des vagues. Les aires de frai devraient être protégées contre le remplissage, le remblayage, le dragage ou la progression des plantes.

L'achigan à grande bouche préfère les racines et les souches comme abris pour le frai. On devrait éviter le dragage, le nettoyage des rives et le contrôle chimique de la végétation aquatique là où il y a des achigans à grande bouche. Ceux-ci préfèrent les rives exposées au sud.

L'achigan à petite bouche se tient près des rives dégagées et pierreuses, exposées au sud. Il est souvent dérangé par les bateaux, l'aménagement de plages artificielles, les travaux de soutènement des rives et le contrôle chimique des plantes.

La plupart des espèces qui vivent dans les lacs et les cours d'eau dépendent de la productivité de la zone littorale pour leur alimentation et leur abri. On devrait donc déconseiller fortement la modification des zones littorales et des terres riveraines, ainsi que la canalisation des cours d'eau.

Importants renseignements biologiques

Même si ses effets ne sont pas encore visibles sur la production de poissons, on prévoit que l'acidification influera, dans un avenir prévisible, sur la reproduction naturelle des poissons qui fraient dans les marais, comme le brochet et le maskinongé.

Les ruisseaux d'eau froide du district sont gravement endommagés par les barrages des castors, qui causent le réchauffement des eaux, le ralentissement du courant, l'alluvionnement du fond des cours d'eau et l'élimination du substrat de frai.

Les activités humaines, comme le dragage, l'élimination des méandres, l'abreuvement des bêtes, le drainage agricole, l'érosion des surfaces, l'infiltration des engrais chimiques et l'altération des rives, ont eu des effets néfastes sur la productivité des cours d'eau dans le district.

Le nettoyage des rives pour la construction de chalets, l'installation de quais permanents, l'aménagement de plages artificielles et autres ont également nui à la production de poissons dans les lacs. L'exploitation forestière et l'intensification des pratiques agricoles ont entraîné l'érosion, l'alluvionnement et le dépôt d'éléments nutritifs dans les eaux du comté de Lanark et les eaux de la municipalité régionale d'Ottawa-Carleton.

La construction et la manipulation de barrages ont eu beaucoup d'influence sur la détérioration de la qualité des zones littorales, sur l'eutrophisation, et sur le dépôt et l'incubation du frai.

Tendances de la pêche

Dans la plupart des lacs populaires du district de Carleton Place, la population des espèces pêchées a diminué d'au moins 50 % depuis 1959-1961. Le niveau le plus bas a été atteint au milieu des années 1970. Depuis 1978, on constate une hausse modérée du nombre de poissons destinés à la pêche sportive.

La pêche à la ligne a augmenté de façon constante et graduelle jusqu'au milieu des années 1970, puis on a observé une baisse de 25 %. Depuis 1980, elle a augmenté de nouveau et a surpassé le niveau précédent.

Pêche sportive

La pêche à la ligne est pratiquée dans 296 cours d'eau, d'une superficie totale de 23 045 hectares. Cette ressource devrait être en mesure de produire 227 tonnes de poissons par année. Ce volume pourrait créer 350 400 possibilités de pêche à la ligne par année.

À l'heure actuelle, le district génère 200 000 possibilités de pêche à la ligne récréative et compte 138 000 pêcheurs à la ligne.

Les espèces les plus convoitées par les résidents sont le doré, le brochet, la lotte, la barbotte, la barbue, l'achigan et la truite. Les principaux poissons qui sont pris par des non-résidents sont la perchaude, le crapet, le brochet, l'achigan à petite bouche, le crapet de roche, le doré et le crapet arlequin.

On estime que la pêche au harpon légale contribue moins de 500 possibilités de pêche récréative par année dans le district.

La pêche au carrelet produirait, pour sa part, moins de 400 possibilités de pêche récréative par année.

Compte tenu du très petit nombre d'endroits où la pêche à l'arc est autorisée, on croit que ce genre de pêche produit actuellement moins de 100 possibilités par année. La pêche de la carpe à l'arc pourrait être accrue, pour atteindre 2 000 possibilités par année.

La pêche aux poissons d'appât

Le district de Carleton Place est actuellement divisé en 36 sections de pêche aux poissons d'appât. Des droits exclusifs de pêche sont accordés à des détenteurs d'un permis de pêche. Certains pêcheurs qui ont des endroits relativement peu productifs pourront se voir attribuer plus d'une section. Là où les droits actuels de pêche font double emploi, le système d'une seule section par pêcheur sera graduellement mis en oeuvre, à mesure que l'attrition réduira le nombre de détenteurs d'un permis actuel.

À long terme, le nombre de pêcheurs aux poissons d'appât devrait être réduit et on devrait encourager ces derniers à utiliser des bassins et des viviers. Le système de doubles permis devrait être éliminé.

Pêche commerciale

Le district de Carleton Place est divisé en quatre zones de pêche commerciale contingentée.

Jusqu'en 1984, la gestion des pêches se faisait uniquement par la désignation de territoires, l'établissement de saisons, les limites de taille et l'imposition de restrictions quant à l'équipement de pêche. À l'avenir, la gestion comprendra également le contrôle en imposant des quotas.

La pêche commerciale pour fins de consommation souffre du manque d'efficacité, de la contamination, d'une pêche excessive partielle, de l'altération de l'habitat et de l'opposition du public.

De façon générale, on estime qu'il est possible de tripler les prises de la pêche commerciale pour les porter à 10 000 kg par année, pourvu qu'on puisse éviter les conflits entre les groupes d'utilisateurs.

Exploitants d'installations touristiques

Il existe un bon nombre de pourvoyeurs dans le district. Les installations sont très variées : de simples cabines à des établissements avec pension complète, et location de bateaux et de guides. Les usagers des établissements touristiques sont surtout attirés par le potentiel des lacs du district en dorés, même si les prises se composent surtout de crapets, de brochets et d'achigans.

Prévisions concernant la demande et l'offre

Compte tenu de la croissance démographique de 12,5 % qui est prévue, on peut prédire que le nombre de pêcheurs à la ligne dans le district de Carleton Place va augmenter, passant de 138 000 en 1980, pour un total de 800 000 heures/lignes ou 200 000 possibilités, à 155 000 en 2001, pour un total de 900 000 heures/lignes ou 225 000 possibilités. Les prises permises dans le district de Carleton Place sont suffisantes pour permettre 273 000 possibilités de pêche à la ligne.

Le nombre de poissons d'appât dans le district de Carleton Place est suffisant pour répondre aux besoins de 15 pêcheurs autorisés, qui prennent des poissons dans 15 sections de pêche naturelles : 10 sont des zones intérieures et 5 sont des zones de la rivière des Outaouais et de la rivière Rideau.

Il est possible d'intensifier encore un peu plus la pêche commerciale dans le district et d'émettre d'autres permis, pourvu que la pêche commerciale soit acceptée par le public.

Problèmes et questions

Les problèmes et les questions dans le district peuvent être classés en huit groupes :

1. pêche sportive excessive
2. pêche insuffisante
3. détérioration de la qualité de l'eau
4. baisse du niveau de l'eau
5. aménagement des rives
6. manque de spécialistes en gestion des ressources
7. conflits
8. manque de données et de renseignements

Le plan de gestion identifiera des mesures de gestion visant à résoudre ces problèmes.

Stratégies de gestion facultatives

Dix-neuf grandes questions ont été identifiées. Des mesures correctives ont été mentionnées pour fins d'évaluation dans les tableaux 21.1 à 21.7. Des points positifs et négatifs ont été signalés. À la suite de l'examen public, les stratégies et tactiques qui sont appropriées aux fins de la gestion future des ressources, et acceptables pour les différents groupes d'intérêts, seront énumérées dans le plan de gestion des pêches.

PLAN DE GESTION DES PÊCHES DU DISTRICT DE CARLETON PLACE

RENSEIGNEMENTS GÉNÉRAUX ET STRATÉGIES DE GESTION FACULTATIVES

QUESTIONNAIRE

Maintenant que vous avez eu la possibilité d'examiner les renseignements généraux, les problèmes et les questions concernant les pêches, ainsi que les stratégies de gestion facultatives, nous aimerions connaître vos observations ou suggestions.

Pour vous aider, nous avons préparé un questionnaire. Vos observations seront prises en considération lors de la préparation de l'ébauche du plan de gestion des pêches.

Nous vous prions de retourner le questionnaire au bureau du district, au plus tard le 28 février 1987.

1. Un certain nombre de problèmes et de questions ont été identifiés dans le rapport. Veuillez les examiner et indiquer l'importance que vous leur accordez.

		Pas important - Très important 1 2 3 4 5
(i)	Pêche excessive	_____
(ii)	Introduction d'espèces ou de souches non indigènes	_____
(iii)	Prises illégales	_____
(iv)	Perte d'espèces ou de groupes génétiques	_____

(v) Sources insuffisantes de poissons provenant d'étangs d'élevage _____

(vi) Perte ou détérioration de l'habitat _____

(vii) Sous-utilisation des espèces ou de l'habitat _____

(viii) Accès limité aux cours d'eau (emplacements de pêche) _____

(ix) Conflits entre les utilisateurs _____

(x) Utilisations contradictoires des terres et des eaux _____

(xi) Manque de connaissances chez le public et demande peu réaliste pour des ressources _____

(xii) Manque de données scientifiques _____

2. Si vous croyez que nous avons ignoré des problèmes ou des questions, veuillez les énumérer ci-dessous et nous indiquer l'importance que vous leur accordez.

PROBLÈME/QUESTION	Pas important - Très important 1 2 3 4 5
(i)	_____
(ii)	_____
(iii)	_____
(iv)	_____

3. Autres commentaires ou suggestions.

_____
_____
_____
_____
_____

Nous vous remercions de vos réponses.

Veuillez indiquer vos nom et adresse pour que nous puissions vous informer lorsque l'ébauche du plan de gestion sera prête, et solliciter vos commentaires.

_____
_____
_____
_____
_____